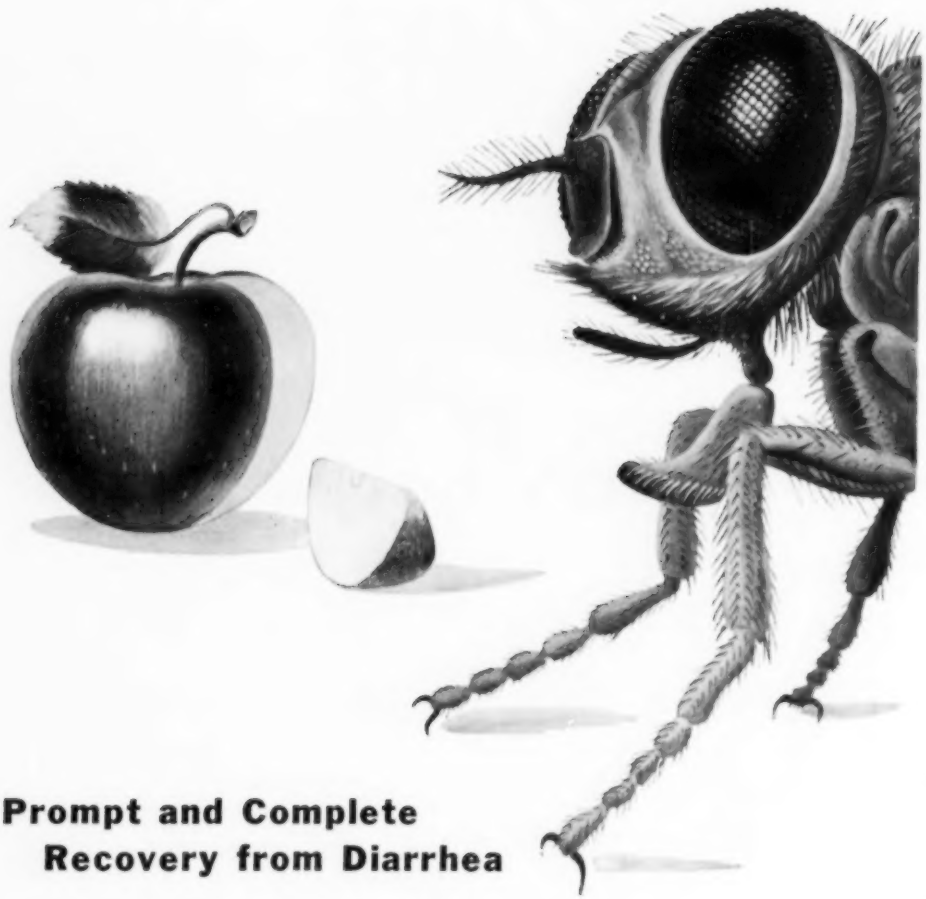
INDUSTRIAL MEDICINE AND SURGERY

Volume 23 SEPTEMBER 1954 Number 9



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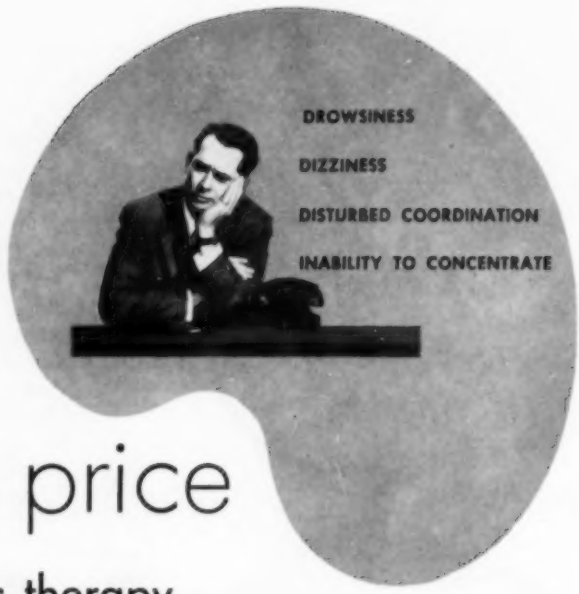

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ELSTON L. BELKNAP, M.D., well known authority on occupational diseases, has been appointed head of a new department of occupational and environmental medicine at Marquette University School of Medicine, Milwaukee. DR. BELKNAP was graduated from Johns Hopkins Medical School in 1923, and has been on the medical school faculty since 1928. He took over the new department July 1; its program will "emphasize the occupational and industrial environmental factors in the plants and homes of the workers and their neighbors."

AT THE California Medical Association's 1954 Annual Session the House of Delegates confirmed the appointment of DR. JOHN E. KIRKPATRICK, San Francisco, as a member of the Committee on Industrial Practice of the California Medical Association for a period of three years. The other members of this committee are DR. PACKARD THURBER, SR., Chairman, Los Angeles, and DR. HAROLD DOWNING, Fresno.

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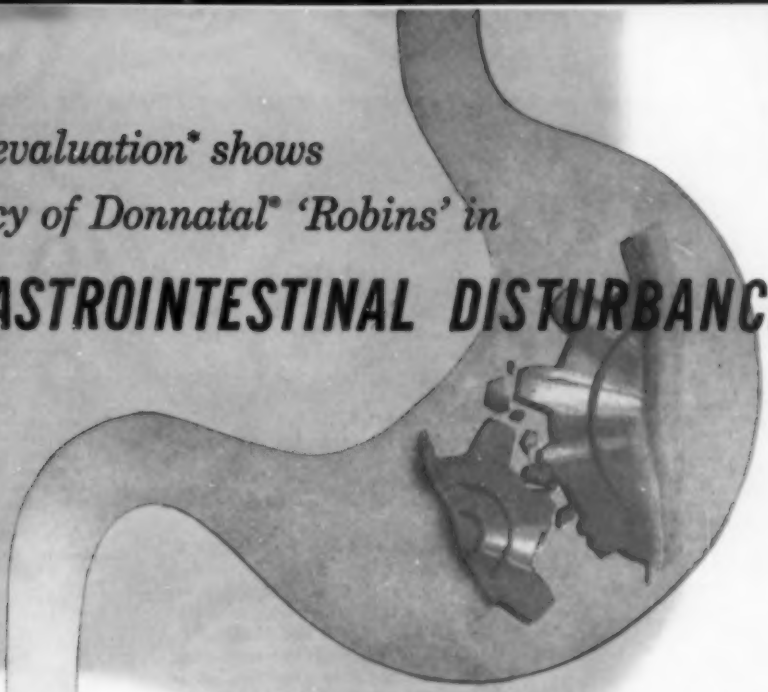

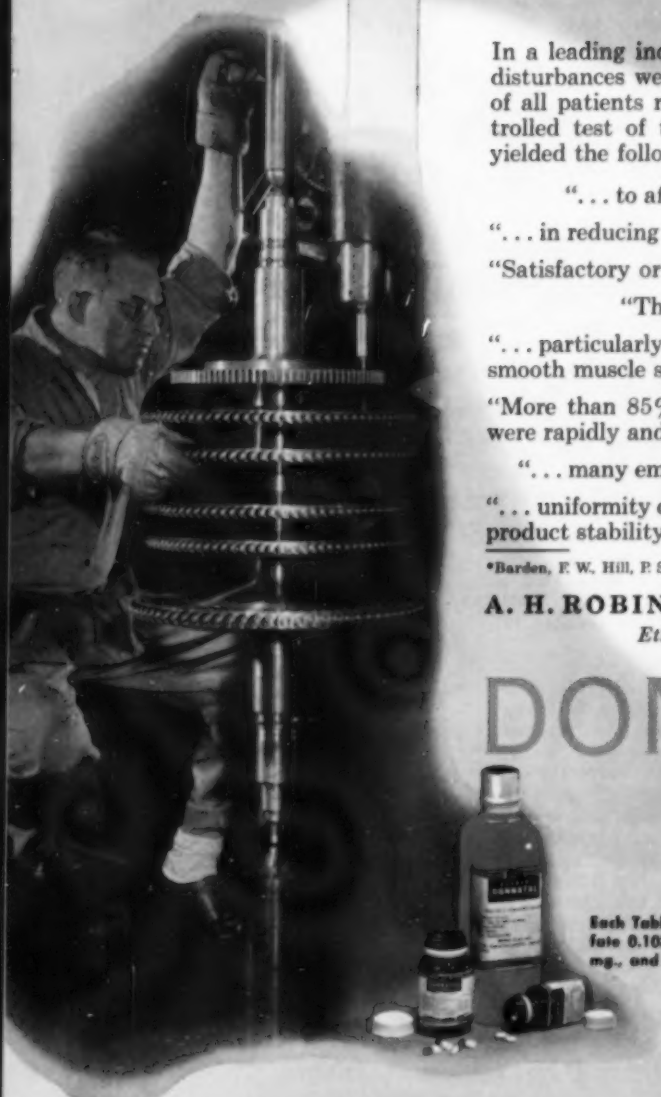

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*Barden, F. W., Hill, P. S., Mahaney, W. F., & Cuneo, K. J.: Journal Maine Med. Assn., Jan., 1954.

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Kansas, has been appointed Medical Director of the Delco Battery Operations, Delco-Remy Division, General Motors Corporation, Muncie, Indiana.

WALTER AYE, M.D., the only medical officer of the Pennsylvania Railroad ever to attain 50 years of service, retired at the end of July from his position as Divisional Medical Officer in Chicago, and as Medical Examiner for the Chicago Union Station Company.

HARVEY B. SNYDER, M.D., formerly Chief Resident in Medicine at Jefferson Davis Hospital, Houston, and a Consultant in Electrocardiography at the Houston Veterans Administration Hospital, has joined the Medical Division of Humble Oil and Refining Company in Houston, as internist and diagnostician.

OSCAR M. DERRYBERRY, M.D., Chattanooga, Director of Health for the Tennessee Valley Authority, has been appointed Lecturer in Preventive Medicine by the College of Medicine of the University of Tennessee in Memphis.

THOMAS L. DWYER, M.D., F.C.C.P., Mexico, Missouri, (Fellow IMA), will deliver a paper on "Posterior Mediastinal Malignant Tumor" at the International College of Chest Physicians meeting in Barcelona, Spain, on October 6.

THE University of Arkansas School of Medicine at Little Rock, along with the Committee on Industrial Medicine for the Arkansas Medical Society, and the Arkansas Academy of General Practice, are sponsoring a Symposium on Industrial Medicine, to be presented October 12, 1954.

UNIVERSITY of California, University Extension, is inaugurating a course in the "Application of the Principles of Industrial Medicine to Private Practice." A fall session will begin October 13, continuing to December 8, 1954, and a spring session will begin February 2 continuing to March 23, 1955. For information write THOMAS H. STERNBERG, M.D., Head of the Division of Postgraduate Medical Education, University of California Medical Center, Los Angeles 24.

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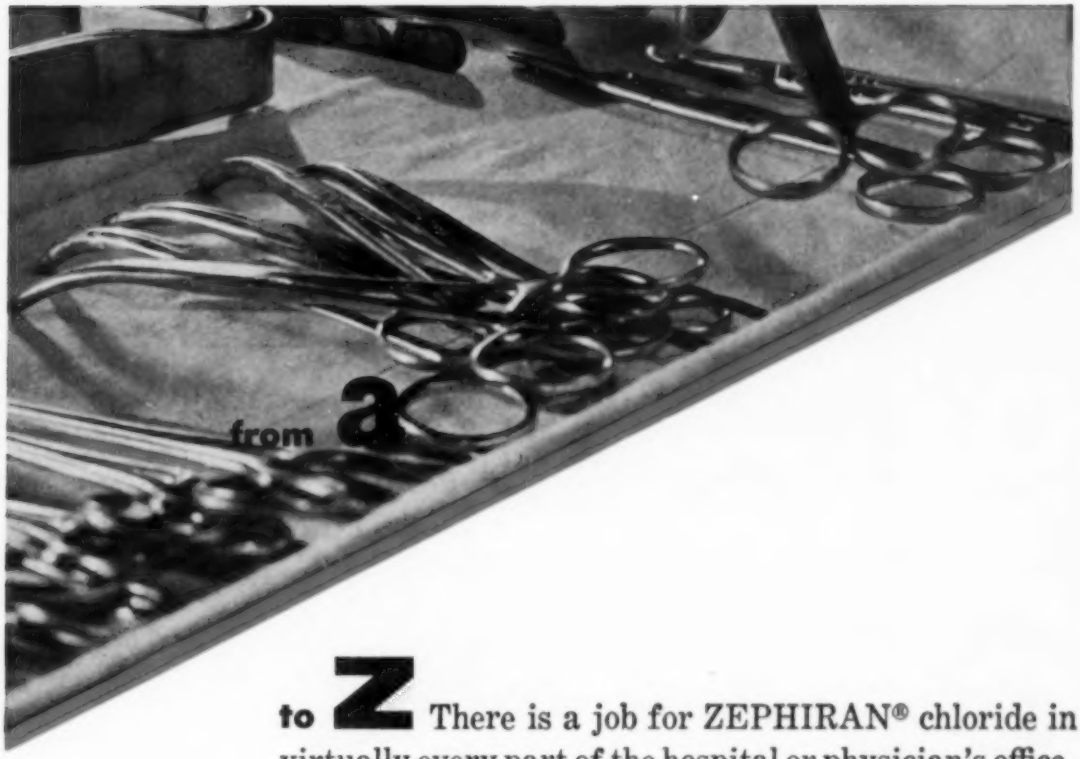

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THE Chamber of Commerce of Houston, Texas, announces that the Seventh Annual Industrial Health Conference will be held in Houston, September 23-25, at the Shamrock Hotel. The program includes a Symposium on "Industry in the Atomic Age"; another on "Absenteeism, Alcoholism, and Mental Health in Industry"; and a third on "Establishing Effective Health Programs in Industry." DR. W. D. NORWOOD, DR. NORMAN PLUMMER, DR. G. H. GEHRMANN, DR. WILLIAM C. MENNINGER, DR. JAMES H. STERNER, and DR. KIEFFER DAVIS will be among the speakers.

SOCONY-VACUUM Oil Company is holding its annual Medical Meeting at the Paulsboro Refinery, Paulsboro, New Jersey, October 14 and 15, 1954. C. L. SAMUELSON, M.D., Medical Director at Paulsboro, will be Chairman of the Meeting.

MARVIN R. ALBERG, M.D., who has just received a Degree of Master of Science and Public Health from the University of Michigan, has become associated with the Standard Oil Company (Indiana) at its Whiting Refinery where he will put into practice the industrial training he has been given. DR. ALBERG is a native of Colorado. He received a B.A. from the University of Denver in 1944, and his M.D. from the University of Colorado in 1947. He had one year's internship at the Kansas City General Hospital, 1947-48, and one year's residency at the Kansas City Hospital, 1948-49, where he specialized in chest diseases. In 1949-50 he worked for the U.S. Public Health Service on a mobile

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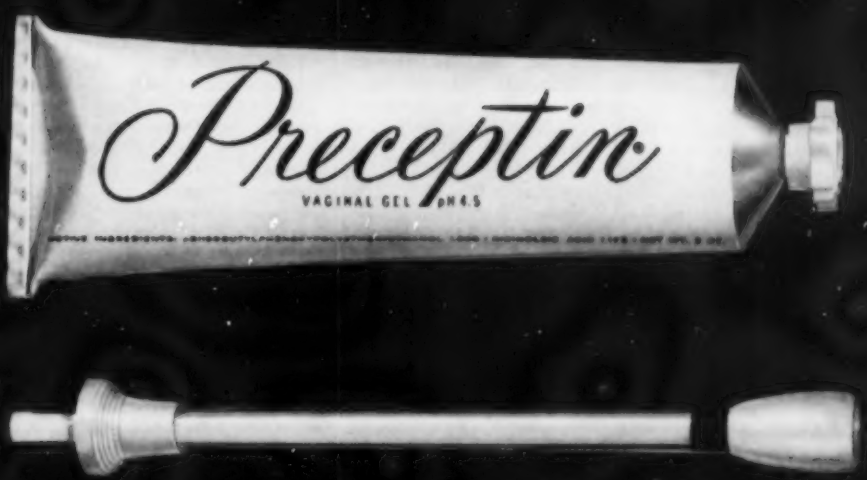

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unit in Utah, California, and Colorado. In 1950 he entered the Navy, where he spent two and a half years. During his naval training he had industrial experience in the naval shipyards and two months' training at the Harvard Industrial Health Clinic.

ADMIRAL JOSEPH B. LOGUE, (U.S.N., Ret.) has been appointed Medical Director of the Isthmian Steamship Company. DR. LOGUE will have full supervision and administration of the company's medical services throughout the United States and will maintain his headquarters at 68 Trinity Place, New York. Prior to joining Isthmian, ADMIRAL LOGUE was Inspector of Naval Medical Activities on the Pacific Coast, with headquarters at Treasure Island, San Francisco, as well as District Medical Officer, Twelfth Naval District. From 1949 to 1953 he was District Medical Officer, Sixth Naval District, with headquarters at Charleston, South Carolina. Prior to this, he was on duty at the Bureau of Medicine and Surgery, Navy Department, Washington, D.C., as Director of Personnel. After graduating from the University of Georgia Medical School and receiving his M.D. in 1918, ADMIRAL LOGUE joined the U.S. Naval Reserve Force as Assistant Surgeon. He was selected to the rank of Captain in November, 1920, and to the rank of Rear Admiral in the Medical Corps on April 1, 1944. He served through the campaigns in New Britain, December, 1943, and the Palau Islands, October, 1944. In addition to the Legion of Merit with Combat "V," Purple Heart Medal, and the Ribbon for the Presidential Unit Citation to the first Marine Division, Reinforced, REAR ADMIRAL LOGUE has the Marine Expeditionary Medal; the World War I Victory Medal; American Defense Service Medal, Base Clasp; the American Campaign Medal; Asiatic-Pacific Campaign Medal with three bronze stars; and the World War II Victory Medal.

AN INDUSTRIAL NURSING institute sponsored by the Catholic University of America, the American Association of Industrial Nurses, and the Metropolitan Washington Industrial Nurses Association will be held on the Saturdays of October 23 and October 30, 1954, at the Catholic University of America, Washington, D.C. The two-day study course will cover the following subjects: "The Development of an Industrial Nursing Service," "The Administration and Supervision of Industrial Nursing Services," "Medical Developments Related to the Industrial Health Field," "Advances in Surgical Procedures and the Industrial Nurses' Responsibility," and the "Control of Absenteeism by Promoting Good Work Attendance." DR. R. LOMAX WELLS, Medical Director, Chesapeake & Potomac Telephone Companies, Washington, D.C., is on the planning committee for the Institute. The physician participants on the program are: DR. ROBERT J. COFFEY, Professor of Surgery and Director of the Department of Surgery, Georgetown University School of Medicine; DR. F. BENEDICT LANAHAN, Medical Director, Electric Storage Battery Company, Philadelphia, and Professor of Occupational Medicine, Woman's Medical College of Pennsylvania; DR. LEO WADE, Medical Director, Esso Standard Oil Company, New York; and DR. WALTER D. WOODWARD, Medical Department, American Cyanamid Company, New York. DR. WILLIAM M. GAFAFER, Doctor of Sociology, Chief Statistician, Occupational Health Program, U.S.P.H.S., Department of Health, Education and Welfare, will be Moderator of a panel on Absenteeism.

THE SARANAC Laboratory, of Saranac Lake, New York, and the McIntyre Research Foundation, of Toronto, Canada, are joint sponsors of a Conference on Silicosis and Occupational Chest Diseases to be held on Monday, Tuesday, and Wednesday, February 7, 8, and 9, 1955, in the Town Hall at Saranac Lake.

INDUSTRIAL HYGIENE FOUNDATION has available the transactions of the Technical Conferences at its Eighteenth Annual Meeting at Mellon Institute in Pittsburgh in November, 1953. The contents cover the Medical and Legal Conferences, the Joint Medical-Legal Conference, the Engineering Conference, and the Toxicological Conference. This publication is available at $3.00 per copy. The Foundation also announces several other publications: "The Activities and Members of Industrial Hygiene Foundation"; "Effect of Outer Fiber Stress on Brace Design"; and "A New Apparatus for the Partitioning of Expired Air of Small Animals," these available at no cost. Address Mellon Institute, 4400 Fifth Avenue, Pittsburgh 13.

ROBERT C. PAGE, M.D., President of the Industrial Medical Association, Chairman for the Trustees of the Occupational Health Institute, and General Medical Director, Standard Oil Company (New Jersey) will direct a three-day meeting of members of the Managements and Medical Departments of the European affiliates of the Standard Oil Company (New Jersey) in Rome, Italy, September 8-10. The meeting sessions will discuss medical policy, preventive medicine, constructive medicine, educative medicine, and curative medicine. Participants in the Rome meeting will be: (Austria) K. BAUMGARTEL, M.D.; (Belgium) C. ANDERSEN, M.D., R. ANDERSEN, C. M. STEWART, G. VAN DEN BERGHE, M.D.; (Denmark) M. IVERSEN, M.D., E. MULLER; (England) E. H. CAPEL, M.D., J. L. N. POLLOCK, D. C. RENNIE, M.D.; (Finland) R. W. BISTROM, LEO NORO, M.D., A. TAHKA, M.D.; (France) J. BALLET, J. J. L. GARELLY, M.D.; (Germany) A. ECKARDT, H. HERRMANN, M.D.; (Ireland) J. F. EUSTACE, M.D.; (Italy) E. AONZO, M.D., A. BALDI, M.D., M. BAZATTINI, G. A. COMBA, G. NAPOLEONE, M.D., S. ROSSI, M.D.; (Netherlands) G. J. D. DELESPINETTE, B. J. Q. VAN TILBURG, M.D.; (Norway) T. FIGENBAUM, PER GIERTSEN, JR., M.D.; (Sweden) K. G. BERGSTRAND, C. H. SKOGLUND, M.D.; (Switzerland) J. L. DUVOISIN, HANS KUHN, M.D.; (United States) R. P. BOLTON, W. W. HALL. From September 13 to 19 the doctors will also attend the Eleventh International Congress on Industrial Medicine, in Naples.

MR. CLIFFORD F. HOOD, President, United States Steel Corporation, will be the keynote speaker at the Nineteenth Annual Meeting of Industrial Hygiene Foundation to be held at Mellon Institute, Pittsburgh, November 17 and 18. At the General Meeting, November 18, he will speak on management aspects of industrial health. Also on the program for the main day are other speakers, to discuss topics relating to industrial health which are at present of great concern to management. DR. NORBERT J. ROBERTS, Medical Director, Pennsylvania Railroad,

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will talk on horizons of industrial medical services. Currently well into a program of reorganization and expansion of the industrial medical services of the Pennsylvania, DR. ROBERTS has facts and figures and, even more important, suggested modus operandi for setting up a system-wide maintenance and health program designed to benefit all employees and at the same time set a new high for production efficiency. With increasing responsibility for plant protection and post-attack defense measures falling on industry, the problem of civil defense for the industrial plant is a major one. LT. GENERAL WILLARD S. PAUL, USA (ret.), Assistant to the Director for Non-Military Defense, Office of Defense Mobilization, will discuss the subject and will present advice as to how to plan a civil defense program for industry. DR. DONALD A. COVALT, Associate Director of the Institute of Physical Medicine and Rehabilitation, New York University—Bellevue Medical Center, will bring with him to the rostrum a wealth of experience in the field of rehabilitation, his subject for discussion. DR. C. STEWART NASH, of the University of Rochester, a noted authority on otolaryngology, will give a medical evaluation of noise. Speaking on health insurance programs in industry will be MR. A. L. KIRKPATRICK, Manager, Insurance Department, Chamber of Commerce of the United States, who has had wide experience in the health insurance field. The significance of industrial wastes will be discussed by DR. RICHARD D. HOAK, Mellon Institute, who is well known for his accomplishments in this field.

THE PICTURE below was taken on Friday, July 16, at the United Nations in New York on the occasion of the presentation to the Health Service of the United Nations of a Certificate of Achievement from the Occupational Health Institute. The Certificate is being presented by ROBERT C. PAGE, M.D., O.H.I. Chairman, to BENJAMIN COHEN, Acting Secretary-General of the United Nations. From left to right: STEPHEN G. HALOS, O.H.I. Vice-Chairman; ROBERT C. PAGE, M.D., O.H.I. Chairman; DAVID W. BLACK, O.H.I. Treasurer; BENJAMIN COHEN, U.N. Acting Secretary-General; FRANK CALDERONE, M.D., U.N. Medical Director. MR. COHEN flew in from Bogota, Colombia, for the ceremony; DR. CALDERONE flew in from Halifax, Nova Scotia, and MR. HALOS from Miami, Florida.

Deaths

WILLIAM O'NEILL SHERMAN, M.D., 74, at Pittsburgh, June 20. DR. SHERMAN originated the practice of inserting stainless steel plates in fractured limbs, and introduced the parafine treatment for severe burns and the Dakin solution method of irrigating open wounds to curb infection. He retired eight years ago as Chief Surgeon of the Carnegie-Illinois Steel Corporation.

BRIGADIER GENERAL JAMES STEVENS SIMMONS, United States Army (retired), 64, at Hartford, Connecticut. GENERAL SIMMONS had been Dean and Professor at the Harvard School of Public Health since 1946, following 30 years of Army service. During World War II, he was Chief of Preventive Medicine for the U.S. Army. He was a member of the Council on Industrial Health of the American Medical Association. Internationally known for his achievements and leadership as a scientist, he was outstanding as an administrator and educator in the fields of preventive medicine and public health, and medical education.

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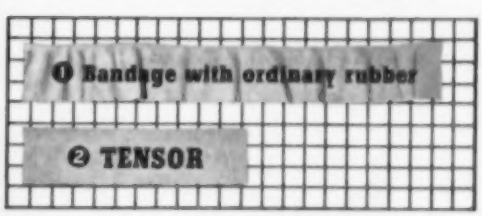

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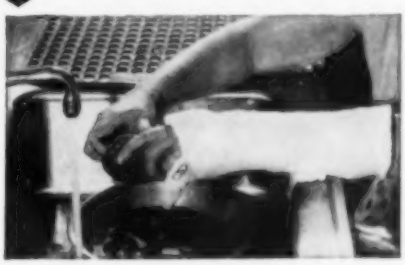

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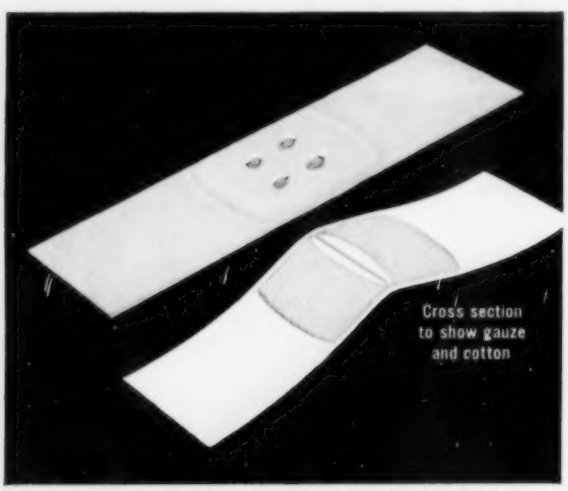

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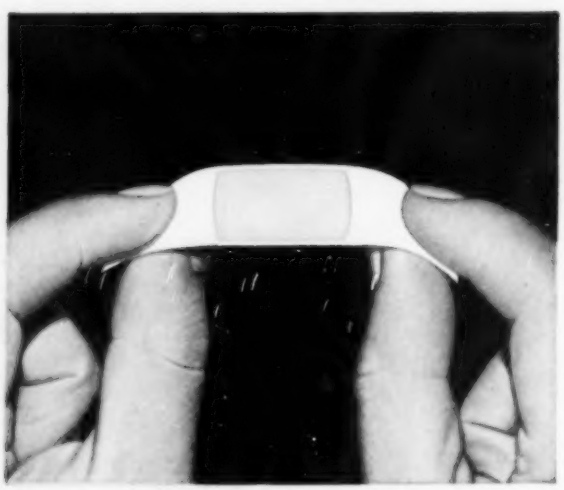

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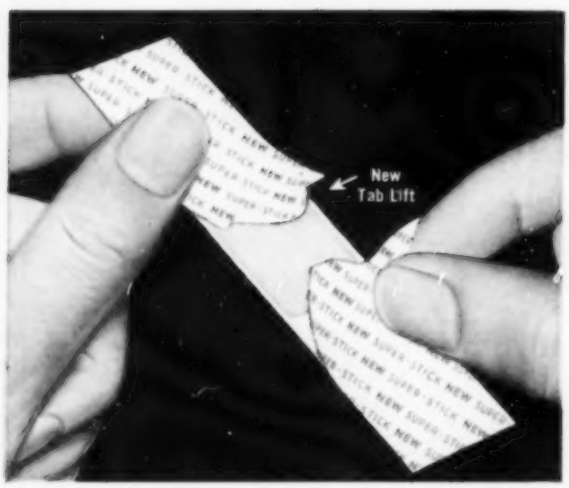

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Janney, J. C.: Medical Gynecology. ed. 2, Philadelphia, W. B. Saunders Co., 1950, p. 365.

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NEW IOWA BREAKFAST STUDY REPORT

In recent studies at a distinguished medical school of a leading mid-west university, it has been shown (1), (2), (3) that the omission of the morning meal may result in the lowering of the mental and physical efficiency of young women, young men, and old men during the late morning hours. It was deemed important to determine if the same things hold true for boys 12-14 years of age. In order to determine this, physiologic responses of 25 healthy boys 12-14 years of age were critically observed for a period of 28 weeks (4).

The physiologic responses used to show any effects which the omission of breakfast might have on 12-14 year old boys were as follows: neuromuscular tremor magnitude, choice reaction time, maximum grip strength, grip strength endurance, maximum work rate, and maximum work output.

The attitudes and scholastic attainments of the boys were deducted from teachers' observations and records.

BASIC BREAKFAST. In order to show the effect of the omission of breakfast on the responses of the boys each general diet plan was broken down into two periods as follows:

BASIC BREAKFAST PERIOD. During this time a breakfast was served which consisted of fruit, cereal, milk, bread and butter, which provided approximately one-fourth of the total caloric and protein requirement for each subject.

OMISSION OF BREAKFAST. During the period that the morning meal was omitted no food was allowed after 8:00 P.M. until lunch the following day.

FROM THESE EXPERIMENTS SEVERAL PRACTICAL AND SOUND CONCLUSIONS CAN BE DRAWN:

- **Neuromuscular tremor magnitude, choice reaction time, grip strength and grip strength endurance were unaffected by the omission of breakfast.**
- **Maximum work rate and maximum work output were significantly less in the late morning hours during the period when breakfast was omitted.**
- **It was the consensus of the school authorities that the omission of breakfast exerted a significant detrimental effect both on the attitude and scholastic attainment of the boys who followed this practice during the time they were in school.**
- **The subjects showed no significant change in body weight whether they ate no breakfast or a basic cereal breakfast, so long as their total caloric intake per day was not changed.**
- **The conclusions drawn from the study of boys 12-14 years of age not only confirmed many of the findings which applied to young women and young and old men, but demonstrated that, for the most part, the good breakfast habit is a sound nutritional principle that applies to teen-agers and the young and old alike.**

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INDUSTRIAL MEDICINE AND SURGERY
SEPTEMBER, 1954

Recreation Programs in Industry

HEALTH ASSET OR LIABILITY?

JEAN SPENCER FELTON, M.D., Oklahoma City, Oklahoma

TO PROVIDE pleasurable facets to the group living of industry, America's commercial and manufacturing enterprises, large and small, have established and sponsored recreation programs for their employees. No newcomer to the variety of fringe benefits occurring to today's worker is a program of industrial recreation, for in 1883 George Pullman, of the Pullman Company of Chicago, was noted as one of the pioneering exponents of plant athletics.[1]

During the 70 years just past, the movement for after-hour recreation, encouraged and aided by industry, has materialized into a gigantic effort wherein approximately 20,000 companies have organized programs for their employees. In these programs there are 24,000,000 workers participating, and the annual expenditure is estimated at $163,000,000.[2] The activity involves not only the workers and their families as participants or spectators, but also has provided grist for the sporting page mills of plant house organs and community dailies.

The investment for the promulgation of these programs is made in equipment, playing fields, courts or recreation buildings, uniforms or special sportwear, trophies, emblems and awards, team and spectator transportation, musical instruments, books and journals, fields and equipment, and food and beverages consumed during or after contests, or during end-of-the-season team banquets. This is big business! This represents interests from the lone custodian responsible for the upkeep of a basketball floor to the manufacturer of bowling alley equipment.

Why?

In discussing the background of this contemporary phenomenon, Meyer and Brightbill[3] have emphasized the leisure time by-product of our present industrial culture. "In recent years," they write, "our working weeks have been shortened from 60 to 48 to 40 hours, and there is now talk of a 30-hour week. Hospitals, transportation systems, and many factories operating on a 24-hour basis demand shifts of workers. Certain professional, agricultural and industrial workers have seasonal employment. Modern industrial conditions, then," they continue, "with increased leisure for everyone, leisure at odd hours for workers on special shifts, and extensive leisure for seasonal workers, challenge recreation to provide constructive uses for the greatly increased free time of all workers."

In addition to the needs created by increased leisure time, Steiner[4] has pointed up the remarkable urban growth of the past 40 years, and the fact that "increasing numbers of people hitherto accustomed to out-of-door life were forced to work in factories and live in crowded urban districts. . . . The traditional amusements of a rural people become pitifully inadequate and unsatisfying for factory workers and for the large numbers of people caught in the meshes of the business and the industrial world." Rogers[5] lists causes for the rapid development of the recreation movement beyond those cited as being these: (a) man must have a sense of achievement off the job in his free time, and (b) specialization in labor.

Granted that industrially sponsored programs were devised to meet these needs, what have been their values? Industrial recreation directors queried on this point[6] have given these answers:

Recreation:

—gives the worker the opportunity to participate with others in activities which offer relaxation from long hours and the strain of work.

—builds up self-reliance in employees and creates *esprit de corps* among them.

—provides workers with a natural outlet for the expression of their desires and interests.

—improves the physical health and mental stability of employees.

—contributes to better relations between employees and management.

—through the development of leadership ability, helps discover foremen and supervisory personnel.

—provided by plants is less expensive for the worker than that provided commercially.

—programs that are well administered help attract a better class of workers to the plant.

—builds and secures the good will of the community and of employees toward management.

DR. FELTON is Associate Professor in Medicine and Associate Professor in Preventive Medicine and Public Health, University of Oklahoma School of Medicine. Formerly, Medical Director, Oak Ridge National Laboratory, Oak Ridge, Tennessee.

—creates worker morale and thus helps increase production, efficiency, and to reduce absenteeism.

The need for individual recognition has been stressed by Eastwood[7] who states: "Most employees yearn for the opportunity to indicate to their supervising officers their degree of ability in leadership. An excellent opportunity presents itself in the recreational and sport programs. Here they have the opportunity to show their ability to manage a team, direct a choral group, lead a handicraft class, act as captain of a team or as chairman of a social committee. Here they can practically demonstrate to their supervisors the quality of their leadership. Recognition of this leadership has been shown to provide excellent data for the up-grading of employees."

But to speak more inclusively than to discuss human needs we must ask, "What is industrial recreation?"

Definition

TO PROVIDE a point of ingress to the subject, industrial recreation should be defined. It has been considered[8] as referring to "pleasurable and non-compulsory activities engaged in for their own sake, and which are carried on for the employees in industry and business during their free time, by themselves, sponsored by employers, or cooperatively (company—employee)." Joining this phase of recreation to the extramural community, the Department of Education of Ontario, Canada, in a comprehensive review,[9] states that, "Industrial or employer recreation is not any special form of recreation. It consists of the usual activities. These activities however, are organized by, and operated for, a group of people who have a bond of relationship through a common work situation. Like any other group of people who have a bond of relationship through a school, church or club, they may gather together for recreation in their free time. Just as recreation carried on through schools, churches and clubs is part of the whole field of community recreation, so also is industrial or employee recreation a part of community recreation."

The "usual" activities are those carried out by the individual or by a group, by young or old, by men or women, by executive (less frequently) or worker, by a shop or laboratory—all engaged in a common effort, aimed at accomplishing the declared mission of the industry with which they are associated. There are people who, in working together, also like to play together and meet on the court, on the diamond, in the bowling alley, at the picnic ground, at the poolside, for a dance, or to listen to music, to develop film, or to create a mobile.

The Activities in Recreation

THE ACTIVITIES are varied, and course the broadest of recreational spectra to provide foci of interest for the desk-jockey or the cat-skinner. A program that is successful appeals to all, and will include something that may entice the less gregarious to join their fellows at day's end.

Recreational offerings in industry include the broad categories of athletic or physical activities, cultural undertakings, social events, and outdoor activities.[10]

Among the athletic and physical opportunities are baseball, softball, basketball, tennis, bowling, ping-pong, swimming, golf, badminton, trampoline, horseshoes, football, archery.

Cultural areas of interest include photography, orchestra, band, chorus, art, dramatics, lectures, public speaking, chamber music, and hobbies—this may include the collectivists in philately, minerology, numismatics, or flori-culture, the builders and operators in model airplane or railroad work or the shop enthusiasts, who with hand tool or power device create works of utility or art from wood, metal, or plastic, or the gardener who assists nature.

Social events encompass such joint enterprises as card parties; special interest clubs—veterans, War Dads, Grandmothers, and the like; holiday parties—Christmas, Thanksgiving, Valentine's Day, Independence Day, etc.; smokers; dinners; bingo games; costume parties; dances.

In the sphere of outdoor activities one finds hunting, fishing, picnics, shooting, skiing, bicycling, hiking, boating.

In one survey of 250 workers in varied industries,[11] physical activities were desired for participation by more individuals in all types of work than social, out-of-door, or cultural activities. Also of interest was the finding that the married group seemed to enjoy the out-of-door activities more than did the single men.

Facilities and Administration

FACILITIES in which these programs are carried out range from a complete use of adjacent community play areas to the lush gymnasiums, pools, fields, and courts provided by the large oil companies centered in the smaller communities of northern Oklahoma.[12,13,14]

In 80% of 264 plants surveyed[15] the program in recreation was administered by the employees themselves, and in a fourth of the group, full-time recreation directors were employed. Budgets allocated for recreation, ranged in different organizations studied, from $.50 to $27.00 per employee per year.

Correlations

CERTAIN observers have attempted to correlate employee recreational programs with factors in job performance and industrial relations. In a study of two groups, participants and non-participants in recreation, Erwee[16] demonstrated that statistically there was a significant difference in favor of the participating group when reviewed for employee desirability as rated by the Employee Rating Card system. No significant differences could be demonstrated between the sample groups in the relationship of recreation to job tenure, to absenteeism, or to safety performance. The author concluded that because of the single positive relationship established, more time and prominence be given to industrial recreation.

Brown, in studying 1300 recreation participants in a plant of 3,400 payroll, demonstrated that there was no significant relationship between those partaking of the company sponsored program and their safety on the job, there being no significant differences in accident [injury] frequency rates.

In an effort to establish a relation between recreational participation and industrial efficiency, Creed questioned 173 male employees in the form of "activity invoices." These were compared with employee rating scores completed by superintendents of major production divisions. Individuals named as the best and the poorest employees in their value to their particular jobs were the ones who indicated their recreational activities.

There was a high degree of relationship between recreational participation and industrial efficiency, as measured by the invoices and ratings. The total number of hours spent in recreation per year by the best workers was a factor, but may imply that the best worker was "active, dynamic, and effervescent, while the poorer workers may have tiring, lethargic, and drab personalities." There were some specific recreational activities in which a significantly greater number of the better employees tended to participate, and likewise another set of activities drawing greater participation by the poorer employees. Although the poorer employee partook of fewer activities, he spent as much time at each as did the better worker. The author stated that the study did not imply that recreation was either the cause or result of industrial efficiency. He did believe that industry should provide recreation for its employees, for it may be causally related to efficient performance, and that recreation by industry can be administered to a greater number of persons on a more economical basis than any other form of recreation.

To summarize the current status and some of the recent findings in recreation programs in industry, Anderson[19] reviewed recent studies. Of noteworthy trends in this field, he cites as one of the most encouraging the employment of a greater number of full-time directors for the organization and administration of industrial recreational activities. Another trend is the increase in the number of companies sponsoring recreation for employees. More highly qualified leaders are being hired for these programs, and employees seem to be enjoying a greater and greater share of the control of these undertakings. Public recreation facilities are being utilized by more companies, indicating an increase in community-company cooperation. (Prezioso[20] has emphasized the contribution in taxes to municipalities by industry, and asks for greater cooperation between public recreation and programs in industry.)

The greatest weakness, administratively, Anderson stated, was the widespread lack of records concerning company programs. The absence of such documents negates the possibilities of further research into the problems of administration which have not been investigated.

Injury Experience and Medical Surveillance

WITH the backdrop in place, the setting is ready for the players and action of greatest medical concern. Whereas much writing has extolled the virtues and values of these programs in industry, little has alluded to the injuries resulting from participation in them. An editorial writer[21] commented in the *Journal of the American Medical Association* to this effect:

"Daily, industrial workers are exposing themselves to the dangers of after-hour athletics without the necessary health clearance or the conditioning needed for arduous exertion. Middle aged employees leading a sedentary life in a supervisor's chair decide to try to regain their prowess of 25 years ago on the gridiron or cinder track. Without physical retraining they throw sudden strains on cardiac musculature, that for many years had to answer no such demands, or, with little knowledge of the game, these athletic dilettantes will catch baseballs on their extended finger tips, turn ankles during poorly executed slides, or twist knees."

The Canadian survey[9] made no mention of injuries sustained by employee participants, and in the section devoted to "Problems in Industrial Recreation," only 89 of 222 respondent companies reported problems, none of which concerned injuries or ill effects. The survey of the National Industrial Conference Board discussed injuries only from the viewpoint of expense and insurance coverage and did not delineate the frequency or severity of such conditions. The total number of workers covered in the survey was 1,245,124, and injuries must ensue with almost all of the 264 companies reviewed having recreation programs.

There has been considerable documentation of athletic injuries in professional sport where medical supervision is broader than in industry. Boxing has caused most concern because of fatalities in the ring,[22] and the syndrome entitled "Punch Drunk," was described by Martland in 1928.[23] Gonzales[24] wrote recently that, "The literature of the past 30 years contains a fair number of references to non-fatal injuries in the various branches of athletics, but fatal trauma has received scant attention, with the notable exception of the deaths in boxing. Most of the contributions in the other sports refer to isolated instances of deaths in which the circumstances are purely accidental, whereas in boxing the suspicion of a willful attempt seriously to injure an opponent may instigate a judicial inquiry, hence the medicolegal implications of deaths have stimulated more thorough medical investigations."

Pertinent in these discussions of boxing, though, as in other sports, is that amateurs and semi-professionals are injured, along with the full-time professionals. In the years 1946-1952, in approximately 2,200,000 bouts, professional and amateur, throughout the world, there were 87 deaths, of which 37 were in amateurs.[25] Gonzales[24] recorded 104 fatalities in New York City from 1918 to 1950, and boxing produced but 21 of these. The injuries sustained among college athletes have been reviewed by Lloyd, Deaver, and

Eastwood,[26] and classified as to sport, type of injury, and body part injured.

The most recent report of Eastwood[27] for the American Football Coaches Association listed 561 fatalities from football (direct and indirect) from 1931 through 1952, of which 153 were classified as "sandlot," 69 as "pro and semi-pro," 283 as "high school," 55 as "college," and one to a football official. These were encountered not only in regular games, but in "scrub or pick-up," "touch football," and "interclass" contests also. Touch football was eliminated from intramural sports at Purdue University in 1948 because of the high incidence of serious injuries.[28]

Intramural activities are cited, for they resemble many of those undertaken in industry, notwithstanding the fact that their college participants are younger, in the main, than industrial workers. Thorndike,[29] Chief Surgeon to the Harvard Athletic Association, in reporting his 1946-1947 experience showed 12 ankle sprains of a 26 total resulting from intramural football, with a loss of 75 days from disability. In the same period nine knee sprains were met with in a total of 18, with a total of 139 days lost from disability, in intramural football.

The point common to athletic injuries in industry is paralleled by Christensen[30] in his description of ruptures of the Achilles tendon, when he wrote, "Of the 57 cases considered here, 26 (46%) sustained the injury during sports. Lack of training seems to be a predisposing factor, since 13 of these 26 cases occurred when the athletes resumed training after a long interval." The industrial athlete is he who most frequently re-initiates his activities after several years of sport abstinence.

The resumption of sport activities by the out-of-condition athlete was commented upon in a discussion of cricketing injuries by Tucker.[31] "Cricket, just like other sports, requires a period of training, especially if the player has to partake in the stresses and strains of three-day county matches throughout the season. After the war, many county cricketers coming back to the game seven years older tended to strain themselves more easily. This was because their tissues had lost their resilience and suppleness, partly because they had not used them regularly, and partly because tissue changes had occurred characteristic of those of a man 40 compared with those of one of 30.

"The boy and the young man should start training for the season at the beginning of April, with running, skipping and increasing periods of practice at the nets. Throwing practice should be carefully graduated, otherwise strains of the supraspinatus tendon are liable to occur. The middle aged cricketer should be even more careful in graduating himself in the strains required for the game. We have seen that muscle strain from a faulty posture or occupation can produce muscle tenderness, and it would appear from experience that often this condition of muscle tenderness precedes a definite tear of a muscle or an arthritis of a joint."

That attention abroad has been given athletic injuries may be seen in the Proceedings of the International Symposium of the Medicine and Physiology of Sports and Athletes,[31a] held at Helsinki in July, 1952. Therein, writers from Norway, Japan, and Finland described their experiences with the trauma attendant upon all kinds of sport efforts.

Reported experience in industry itself is meager—hence the presentation of this material. The National Safety Council cites the injury frequency of one company,[32] with nation-wide participation. Disabling injuries were suffered more frequently by basketball players than by participants in any other popular sport. Second in frequency was soft ball, but it accounted for the most severe injuries, with baseball a close second. The rates reported were as follows:

DISABLING INJURIES

Sport	Frequency (per 1,000,000 man-hours of play or practice)	Days Lost per Injury
All sports	75.11	19.8
Basketball	256.55	14.2
Softball	248.53	26.1
Table tennis	233.70	21.0
Hard baseball	82.05	24.5
Bowling	13.70	2.7
Golf	0	0
Tennis	0	0

The reasons for the injuries were delineated in this manner: Personal factors (poor judgment, ignorance of technique, poor physical condition, and inattention) were responsible for almost half of all injuries, disabling and non-disabling. But 3% were accredited to a faulty playing surface, and 4% were laid to a lack of correct uniforms for the sport.

Another organization[33] in the middle west reports this experience for 1952.

Activities	No. of Injuries
Baseball	10
Basketball	27
Bowling	1
Softball	26
Total	64

Injuries by Age		Areas of Injuries	
Age	Number	Injury	Number
19	2	Ankle	3
20	7	Arms	8
21	1	Back	2
22	1	"Charlie Horse"	1
23	2	Chest	1
24	1	Ear	1
26	7	Elbow	1
27	6	Feet	9
28	1	Fingers	16
29	4	Head	2
30	10	Hip	1
31	2	Knees	7
32	5	Legs	4
33	5	Shins	1
34	1	Teeth	2
35	1	Thighs	6
36	4	Throat	1
39	2	Toes	1
40	1	Wrist	1
51	1	Total	68

Injuries may course a full spectrum from minor abrasions to a death, reported during a conference of industrial recreation directors,

which resulted when a baseball player in the outfield was struck by lightning.[33a]

Of passing interest in this review of injury experience is the trauma accruing to assistants in one form of intramural play in industry, specifically bowling. Although not a recreating industrial employee, the pinsetter in a bowling alley is at the receiving end of the worker's strike and spare efforts. In a recent U.S. Department of Labor study[34] these comments are made: "Typical accidents which appear frequently in the records of state labor departments or industrial accident commissions are broken or mashed fingers, broken noses, concussions, split lips and loss of teeth, lacerations on all parts of the body, leg fractures, and bone injuries which are caused by flying pins or balls. Sometimes these mashed fingers require complete or partial amputation."

Insurance Coverage

IN THE light of the hazards delineated above in industrial programs, there must be certain schemes of insurance coverage to care for the medical and other attendant expenses. The methods of handling this phase have varied, from complete assumption of liability by the sponsoring company, to a total rejection as a problem, of the injury by-products.

In an early review, Diehl and Eastwood[35] sought information from 2,486 companies and among 639 respondents, there were 38% with recreational programs. Those providing information that related to insurance offered these data:

The insurance protection was provided either by group insurance schemes or through company benefit associations that offered provisions for recreational accidents. The authors believed that,

INSURANCE FOR ATHLETIC INJURIES

Insurance Provisions	Number Companies Reporting	Percent
Yes	77	31
No	148	60
Not specified	20	9
Totals	245	100

"Each one of the companies not carrying insurance, unknowingly assumes full responsibility of recreational accidents."

In 1946, Haniford reported on a national survey of industries, and discussed the replies obtained from 472 (15%) returns of 3,087 questionnaires. The respondents were in 36 states, and employed a total of 1,206,950 people. But 219, or 49% of the companies, provided insurance protection for their participants in representative team sports. Forty-eight percent did provide coverage for participants in general recreation activities. The most prevalent methods of coverage for representative team injuries were: (a) as group insurance, 60%; (b) as rider on workmen's compensation insurance policy, 36%; and (c) as liability insurance, 22%. Scheme "a" was used also in combination with one or both of schemes "b" and "c." The systems employed for general recreation activity injury insurance paralleled those for representative teams, and the methods used least by the former included hospitalization insurance (5%), company insurance (3%), and employee relief benefits (2%).

A breakdown of the figures for insurance coverage by size of company is seen in Table I.

Table II demonstrates the insurance coverage by size of company for general recreation activity injuries.

Eastwood[7] recognized this aspect of company

TABLE I.
INSURANCE FOR REPRESENTATIVE TEAM INJURIES

Size of Company	Companies Reporting	Rider on Workmen's Compensation		Group Insurance		Liability Insurance		Hospital Insurance		Company Insurance		Employee Relief Benefit	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
51—100*	1	—	—	1	100	—	—	—	—	—	—	—	—
101—500	18	5	28	14	78	1	6	1	6	—	—	—	—
501—2,500	58	18	31	39	67	15	26	1	2	2	3	1	2
2,501—10,000	32	12	38	16	50	8	25	—	—	2	6	1	3
10,001—20,000	9	4	44	2	22	1	11	1	11	2	22	—	—
20,001—up	5	3	60	3	60	2	40	—	—	—	—	—	—
Not specified	6	4	67	2	33	1	17	—	—	—	—	—	—
Totals	129	46	36	77	60	28	22	3	2	6	5	2	2

*Number of companies reporting with fewer than 50 employees.

TABLE II.
INSURANCE FOR GENERAL RECREATION ACTIVITY INJURIES

		Insurance Provisions for General Recreation Activities											
Size of Company	Companies Reporting	Rider on Workman's Compensation		Group Insurance		Liability Insurance		Hospital Insurance		Company Insurance		Employee Relief Benefit	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1—50	1	—	—	1	100	—	—	—	—	—	—	—	—
51—100	1	—	—	1	100	—	—	—	—	—	—	—	—
101—500	17	4	24	14	82	1	6	1	6	—	—	—	—
501—2,500	56	17	30	37	66	15	27	3	5	1	2	1	2
2,501—10,000	32	10	31	18	56	8	25	1	3	2	6	1	3
10,001—20,000	9	3	33	3	33	3	33	1	11	1	11	—	—
20,001—up	6	2	33	5	83	1	17	—	—	—	—	—	—
Not specified	6	3	50	3	50	1	17	1	17	—	—	—	—
Totals	128	39	30	82	64	29	23	7	5	4	3	2	2

programs when he wrote, "As the recreational participation increases, especially in those activities associated with sport, the problem of accidents become[s] more acute. Not only the cost of care and treatment but also the problem of 'lost time' needs thorough investigation and the establishment of a policy. Many associations are cognizant of this problem; they have placed riders on their liability policy and have made additional individual adjustments through the compensation benefits to cover cost of recreational injury."

Five major automobile manufacturing companies* were studied by Kraft[37] in regard to the administration of their recreation programs. All of the group indicated that recreation accidents did not constitute a major problem, and that in most instances, only minor accidents occurred in the programs. Further, they felt they could not afford the cost of insurance to cover all participants, therefore none was provided by any of the companies reviewed for either the employees or the families participating.

Of the 264 companies surveyed in the study previously cited,[15] 16.6% reported no provision for medical and hospital expenses for employees injured in their recreation programs. In more than 75% of the organizations, provisions were made for expense of injuries. Workmen's compensation insurance represented most of the companies' methods of bearing the costs of injuries. Details may be seen in Table III.

As may be seen, some companies supplement the provisions of the workmen's compensation coverage. In certain instances, employers emphasize the voluntary nature of the participation of the worker in the recreation program, and liability releases are signed by those taking part.

A special kind of insurance to cover injuries was attempted by one company[25a] in 1942, and its announcement to employees follows:

*Chrysler Corporation, General Motors Corporation, Kaiser-Fraser Corporation, Ford Motor Company, and Hudson Motor Company.

Westcloxers Participating in Recreational Activities Now Insured Against Accidents.

The Westclox Recreational Association has recognized for some time that there is a possibility of a Westcloxer being injured in our recreational program. Such an injury might cause a loss of time and incur medical and hospital cost.

The Association's experience thus far has been good. In fact the Westclox spirit of safety has been carried into all of our activities with results that have been in keeping with our plant record. However, in play we are often so vigorous in our competitive effort that accidents may occur.

Having the best interest of Westcloxers in mind the Association has arranged for accident insurance coverage for all Westcloxers participating in Westclox recreational activities during the year 1942.

Insurance coverage of this kind is somewhat new, and frankly is an experiment. Thus, the Recreational Association wishes it definitely understood that this coverage is for one year only, with the year begining January 1, 1942.

The benefits under this coverage are similar to those paid under the Workmen's Compensation Laws of Illinois.

This insurance is free to all members of the Westclox Recreational Association.

Before an accident is compensable the employee must be actually engaged in, or the accident a result of, the named activity which has been duly recognized or duly sponsored by the Recreational Association.

Employees participating in activities are covered to the following extent:

Horse Shoe—Employees covered only when at the courts.

Table Tennis—Employees covered only when at the courts.

Skating—Employees covered from the time they enter shelter or rink till they leave it.

Baseball—Employees are insured while dressing (if in shelter house) and while on field for all authorized home games, inter-departmental games, or practice.

Outside games—Employees covered only while dressing or undressing in quarters provided for visiting team (if any) and while on the field of play.

TABLE III.
BEARING EXPENSE OF INJURIES IN 264 COMPANIES

Provision for Bearing Expense	Total		Number of Companies by Workers Per Establishment			
	No.	%	1 to 499	500 to 999	1,000 to 4,999	5,000 and over
Workmen's compensation	81	30.7	8	19	38	16
Special insurance	45	17.0	7	7[a]	24[b]	7
Mutual benefit association	32	12.1	1	6	12	13
Company group insurance plan	30	11.4	—	5	16	9
Company physician or medical department	18	6.8	—	2	8	8
Company sick leave plan	13	4.9	—	1	10	2
Company pays medical expenses	10	3.8	1	2[c]	5	2[c]
Club pays medical expenses	6	2.3	—	—	5	1[d]
Injured players' fund	4	1.5	—	1	2	1
Blue Cross	3	1.1	—	—	1	2
Employees sign liability release	2	0.8	—	—	1	1
No provision	44	16.7	11	10	18	5
No reply	18	6.8	1	1	10	6

a. In one company, purchased by employee association.
b. In two companies, purchased by employee association or club. In one other company, only for interdepartment teams. Company representative teams covered by workmen's compensation.
c. In one company, on individual basis only.
d. Individual case reviewed by club's board of governors.
*From Employee Recreation Activities-Administration and Cost, published by the National Industrial Conference Board, Inc., New York, December, 1949.

Bowling—Employees covered while inside our bowling alleys, and while inside any other alleys as long as their presence is necessitated by an engagement in an authorized contest.

Golf—Coverage starts when player approaches the first tee, terminates as he leaves the last hole of designated tournament play.

It is to be remembered that an activity must be authorized by the Recreational Association before the employee can receive the benefits of the insurance coverage. Check with your director about your activity.

Medical Supervision

IN THE work of Lloyd, Deaver, and Eastwood,[26] on *Safety in Athletics*, a chapter is devoted to Player Safety Control, the first section of which covers the "medical and physical examination."

The authors emphasize the fact that examinations of participants diminish sport accidents and are a predominating factor in the lowering of recreational accident costs.

Realizing the need for such a control device in industrial recreation it is of interest to explore the extent of this practice as a preventive factor in the mishaps of the extra-job play of the worker.

The survey of Diehl and Eastwood[35] showed that 83% of their respondent companies conducted no physical examinations on their participants—as seen here:

MEDICAL EXAMINATION FOR STRENUOUS SPORTS

Medical Examinations	Number Companies Answering	Percent
Yes	19	8
No	204	83
Not Specified	22	9
Totals	245	100

The review by Haniford[36] disclosed that only 15% of the 472 companies replying gave a yearly medical examination for those participating in strenuous sports. Whereas in 1940, the author demonstrated examinations were given by 8% of the companies, five years later, an additional 7% conducted such procedures on strenuous recreation participants. By company size, the distribution is shown.

MEDICAL EXAMINATIONS FOR STRENUOUS SPORTS*

	Medical Examinations					
	Yes		No		Not Specified	
	No.	%	No.	%	No.	%
1—50	—	—	—	—	2	100
51—100	—	—	—	—	4	100
101—500	2	5	33	70	12	25
501—2,500	13	12	90	81	8	7
2,501—10,000	14	25	36	64	6	11
10,001—20,000	3	20	8	53	4	27
20,001—up	4	50	4	50	—	—
Not specified	4	18	11	50	7	32
Totals	40	15	182	69	43	16

*From Haniford, ref. 36, page 23.

In 1948, Shaw's[4] review in the Los Angeles Metropolitan Area showed that only one concern, or 1.3%, gave company athletes special examinations, although 77.3% of the firms did examine employees either at time of hire or once annually. The author pointed out that many recreation directors suggested that workers should be examined before being permitted to represent the company. The employee would enjoy better health, and the company would accrue "greater efficiency, more production, and freedom from lawsuit worries." The examination census by company population was as follows:

TABLE IV.
COMPANIES GIVING MEDICAL EXAMINATIONS TO ALL WORKERS AND SPORTS COMPETITORS BY COMPANY-POPULATION DIVISIONS

	Company-Population Divisions					
Examinations	50 to 500	501 to 1,000	1,000 to 5,000	5,000 and up	Total number	Percent
To all workers:						
Yes	15	10	17	16	58	77.3
No	6	10	—	1	17	22.7
To workers competing in sports						
Yes	25	18	15	16	74	98.7
No	—	1	—	—	1	1.3

Of the five major automobile companies cited previously,[37] no examinations were conducted. None was required of the employees before participation, of the employee's families if participating, or of participants in strenuous sports prior to beginning play.

An interesting corollary to this situation is the injury-reporting experience in various companies studied. None of the directors, employees, or managers who suggested additions to the contemporary programs mentioned anything relating to physical examinations or injuries.[4] Only one of the five automobile companies[37] required injury (accident) reports on all recreation accidents, and these were processed through the Medical Department. Of the same group, "company first-aid stations handled all accidents occurring in the recreation program."

The need for prompt medical care was indicated by Lloyd, Deaver, and Eastwood[26] when they stated that "when a physician renders first aid the severity of the injury, as measured by the days lost, is 75.3 average days per 1,000 exposures. When . . . . given by the physical educator the days lost are 105.6 and this figure increases to 222 when a student endeavors to treat the injury." They state further that "to have a medical doctor available for intramural or interschool practice and class instruction is likewise coincident with a lower incidence of days lost."

No statistics are available to indicate the practice among industries as to the rendering of care to employees, who have sustained injuries or company teams, by their own Medical Departments, except as in Table III above, under insurance coverage, where in 18, or 6.8% of the 246 companies, medical care was given by "company physician or Medical Department." Many industrial medical programs include such care without formalizing it by written procedure. To revert once more to the book *Safety in Athletics*, it is interesting to note that the authors intimate that of methods used by academic institutions in the

care of the athletically injured student, "there is a tendency to indicate that when the family doctor cares for the injury, when compared with the other procedures, there is a larger period of incapacity." Is industrial experience comparable?

Liability Experience

BECAUSE of the conflicting picture in insurance coverage, acceptance of liability by the sponsoring company, the failure to provide physical examinations to participants, the inadequate record keeping systems now current, numerous litigations will result, and have resulted in the past. Opinions as to liability and as to the extent of sponsorship have been sought in the courts. Legal proceedings have been undertaken even when the accident has been remote from the formal athletics. A report states[15] that, "in New York the death of an employee whose automobile overturned on the road as he was returning home from a company party was adjudged compensable, the accident being interpreted as arising 'out of and in the course of his employment.' " Another is cited in the same report of an "employee of a New Jersey company who broke his leg while running a race at a company picnic. While he lost out in a court fight to obtain a workmen's compensation court award, he won a settlement from the insurance company which insured the employer."

Factors influencing court decisions have included the site of recreation (on or off company property), the time of play (during or after working hours), the schedule of the game (by the company or other), the issue of uniforms and equipment (by the company or individually furnished by participants), the amount of company financial assistance, and the amount of company supervision. Two points have met with agreement:[15] "If the employee is under some compulsion to participate in the recreation activity, i.e., his participation is not wholly voluntary, and if the company is deriving some advertising value from the activity, the accident is usually held to have arisen in the course of the worker's employment, and as such to be compensable." In general, the laws and decisions have varied throughout the states as they relate to company responsibility. As an example,[37] the Michigan Supreme Court has held that "employees protected under the workmen's compensation law are not entitled to compensation when participating in, or witnessing, recreation activities sponsored by the employer outside of regular working hours." Other state interpretations will differ.

In a discussion of "Heart Disease and Industrial Medicine," Hartman[38] wrote, "Playing baseball after working hours can result in a compensable injury. In this case the decedent was too old for the regular baseball team which was organized by his employer. So he organized a little team of his own. He did not play on company time, but the company did furnish him the equipment. He was running the bases, and was tagged out. He returned to the players' bench and fell dead. This was held to be compensable."

There is difficulty in many instances in isolating, for statistical purposes, specific court cases which have appeared in connection with industrial recreation injury claims. In reporting contested claims for adjudication, the classification would be based on the class of work in which the injured worker was engaged as determined by the classification to which his payroll is assigned for premium purposes. A loss occurring to an employee engaged in a factory-sponsored recreation program at the time of injury would, if adjudicated by a board as being compensable, be assigned to the classification of work in which the injured person is regularly engaged. These losses would not be identifiable as having occurred during such sponsored activities.[39] In accordance with American Standards Association[40] methods of injury rates compilation, "an injury to an employee resulting from participation in athletic activities, whether or not they are company sponsored, shall not be considered an industrial injury unless the participant was paid by the company for these activities." These records, therefore, would not be identifiable in a company's standard industrial injuries' records system—irrespective of their development into claims status.

To review examples of suits that have come to court the following are cited:

CASE NO. 1. A player, wearing a uniform bearing the name of the company was injured playing evening softball in an industrial league under the auspices of the Newark Board of Education, to which the company paid to play, and play was on the employees' own time. It was the opinion of the court that generosity alone to one's employee does not render an employer liable for compensation for injuries suffered while in the enjoyment of the favor, even though there is reciprocal good will and the heightening of morale. Disallowed.[40]

CASE NO. 2. A clerk in the plant protection patrol of the Chevrolet Motor and Axle Division of General Motors was injured in a play at first base in softball between teams of GM employees, and sought compensation. The employees of their own volition, and with no suggestion from management, organized a league of 14 teams. Games were played on employees' own time in a public park miles from the plant, and the players had to furnish their own transportation. They were not paid for time spent on the baseball field, and were subject to deduction if late for work after play or practice. Employees handled all arrangements, procured all equipment, including uniforms bearing the letters "M & A." The employer paid for the equipment and permitted conferences on company time and premises. The games were not advertised and no outside publicity was given. The company nurse gave the injured employee some heat treatments. The Workmen's Compensation Board allowed the claim, but was overruled by the New York Court of Appeals. The court pointed out that the games were personal diversions of the men, were optional, of no business advantage to the employer, and were outside of his control. The financial aid was ruled of no consequence, and was merely "a gratuitous contribution to its employees' social and recreational life," and the treatments by the nurse were the same as those provided all employees who wanted them, for all ailments, whether contracted at

home or on plant property, whether at work or play.[41] In this connection the New York Court referred to a case in Colorado[42] where the court admonished: "Kindness to one may well be cruelty to many. Allowance of this claim could but serve as a warning to employers that they may concern themselves with the social life and recreation of their men, or permit their officers to do so or contribute to efforts to lengthen life, only under penalty of liability for every accident and injury arising from such activities, however remote from the employment itself."

CASE No. 3. A street railway machinist was injured when struck in the eye by a baseball bat while watching an indoor baseball game during the noon lunch hour in a room furnished for the purpose on the premises by the employer. The employee was injured, the court interpreted, while at recreation during a temporary cessation of work, the injury arising out of and in the course of employment, and where the recreation indulged in was fostered and encouraged by the employer to the end of efficiency of their service. Claim allowed.[43]

CASE No. 4. An employee of the New York Stock Exchange, while playing on a series team organized and promoted by the employer, was injured. Time off was given for practice and games, and the employer paid the expenses. It was held by the court that the maintenance of the team was a matter of business, and that the injury was sustained in the course of employment.[44]

The same authors who cited Case No. 4, point out one of several variations in the states when they remark: "In the State of New Jersey, waiver of liability signed by a workman when it concerns workmen's compensation is not valid. An injury to a worker, received while participating in a recreation activity, whether on or off the property owned by the company, comes under workmen's compensation. It makes no difference even if it is after working hours or that the employee participates voluntarily, if the management is sponsoring the program to gain the good will of the worker." They continue: "However, in New Jersey, the ruling is directly opposite if the activity is sponsored by an employee association. The assumption is that the employee enters the activity of his own free will and participates for his own benefits, not for the company."

Kaman, in reviewing the subject, believes that there are four guiding principles that seem to underlie many apparently conflicting recreation cases, and that each case can be, and is, governed by their application:

1. *Compulsion on employee to participate in the recreational activity.* This brings the activity into the general sphere of "business," and compensation generally is allowed.

2. *Advertising and other "benefits" secured by the employer from the recreation.* When direct business benefit is derived by the employer from his employees' recreational activities, then the injury will be compensated.

3. *"Settled practice" of recreation on the employer's premises during the lunch hour.* An injury is usually held compensable when it occurs during recreation which by its "consistent regularity" has become a part of the daily life and routine of the employee, with the knowledge and acquiescence of the employer. Ordinarily this applies to recreation on the employer's premises.

4. *Supervision of the activity.* Some possibility of benefit to the employer is increased by his supervision of the recreation, and negates the element of purely voluntary activity by the employee.

The Industrial Recreation Association wanted to supply its members with the rulings of the respective states in regard to compensation for employees injured while participating in recreational programs, and inquired of the states as to what rulings could be expected. The replies were, in essence, as follows:

Alabama: No applicable ruling. Each claim considered individually.

Arizona: If company maintains and conducts recreation program, and derives benefits, attendant injury would be compensable.

Arkansas: Where recreational activity was fostered by and encouraged by employer, injuries received were deemed compensable.

California: No reply, but references from Campbell, "Workmen's Compensation," Vol. I, point out that liability depends upon facts and circumstances. If employee required to play, injury will be compensable.

Colorado: If participation is voluntary, injured employee does not come under Workmen's Compensation Act. (Cited Industrial Commission of Colorado v. Murphy, 76 P.2d, 741.)

Connecticut: No cases passed on by Supreme Court.

Delaware: Ruling would depend upon evidence.

Florida: Employer is liable irrespective of time of play, or location of activity.

Georgia: No opinion rendered.

Idaho: No reply.

Illinois: No reply.

Indiana: If participant injured during non-working hours, employer's liability not effective. (Cited Seven-Up Company v. Van Close, 44 N.E. 2nd, 1101 —ruled not compensable.)

Iowa: No ruling ever made. Employee to show that injury arose out of employment.

Kansas: Supreme Court has had no occasion to pass on question.

Kentucky: Opinion given that no compensation could be claimed for injury unless, under special agreement reached between employee and employer, there would be compensation for the time lost.

Louisiana: No reply.

Maine: If activity sponsored by employer for good will or to make better employees while working, injury would be considered incidental to employment.

Maryland: No reply.

Massachusetts: No opinion rendered on hypothetical question.

Michigan: Supreme Court held that cited mishap could be an injury arising out of and in the course of the employment. (Clark v. Chrysler Corp. 276 Mich., 24.)

Minnesota: Decision of Industrial Commission and Supreme Court cited wherein injury held compensable. (Le Bar v. Ewald Bros. Dairy Company.)

Mississippi: No reply.

Missouri: Few cases, and no definite policy. Decision would depend upon facts.

Montana: No reply.

Nebraska: If benefit accrues to employer, or if participation is required, injury would be compensable.

Nevada: No reply.

New Hampshire: Decision up to courts, and not Labor Commissioner. (No Industrial Accident Board in state.)

New Jersey: No reply, but case cited where injury received after working hours, where uniforms not supplied by employer, and where no advantage due employer, was held not compensable. (Porowski v. American Can, 15 N. U. Misc. 316; 191 Atlantic, 296.)

New Mexico: Believe injured employees participating not covered under Act.

New York: Two lines of cases: (1) involving goodwill building among employees, and (2) dealing with competitive or league sport, which may have advertising values. First group includes Ade v. Rochester Gas & Electric Co., where injured employee was compensated. Although paid for day of picnic, this was not controlling. Sponsorship of teams figured in Grannis v. Grabe Co., 288 A.D. 740, in Huber v. Eagle Stationer Co., 254 A.D. 788, in Chadwick v. New York Stock Exchange, 252 A.D. 714, and in Host v. New York Stock Exchange, 252 A.D. 233. None turned on the question of the housing of activities on property of the employer. Additional case cited where death of route boy at carriers' picnic deemed compensable Fagen v. Albany Union Co., 24 N. Y. S. 2d 779).

North Carolina: No general rule. In specific decisions, injury held compensable in company-sponsored activity (transportation, uniforms, and equipment furnished) but so held because of facts surrounding incident, not as a general rule.

North Dakota: Injuries not classed as industrial accidents, thus not compensable.

Ohio: Claims covered by provisions of a resolution adopted by Industrial Commission April 26, 1929.

Oklahoma: Injured employees not qualified for compensation under provisions of act.

Pennsylvania: No opinion rendered on case not actually pending for adjudication.

Rhode Island: No reply.

South Carolina: No opinion received, but case cited where injury deemed not arising out of employment (Pate v. Plymouth Mfg. Company, 17 S. C. 2d, 146).

South Dakota: Decision depends upon whether recreation required by employer. Industrial Commission would "probably follow the rule" where recreation fostered by employer, injury would be compensable.

Tennessee: If program promotes or advertises employer's business, the disabled employee would be entitled to compensation.

Texas: No definite answer possible, but if recreational facilities benefited employees in their work, injury would probably be compensable.

Utah: Element of control is determining. If employer organized team, paid expenses, etc., he would be liable. Case cited where injury was compensable (Salt Lake City v. Industrial Commission, 140 P. 2d 644).

Vermont: If program is part of the contract of service, resulting injury would be compensable under the Act.

Virginia: No reply.

Washington: Not believed compensable.

West Virginia: No formal ruling possible, but would depend upon facts and circumstance in individual case.

Wisconsin: Doubtful if injury compensable, but if program is for advertising, there would be liability for payment of benefits to the injured. (Special pamphlet issued by Industrial Commission on *Industrial Baseball.*)

Wyoming: Act does not recognize as industrial, a recreation injury.

Numerous other cases[45-54] are cited in legal writings which demonstrate the disparity in the opinions rendered, although the circumstances may bear some similarity. The claims involve participants and observers, small companies and large, minor injuries and deaths, and activities as part of the game *per se* and inactivity while being transported to or from the recreation. That the picture will become more clouded, will be attested by the increasing growth of industrial recreation, unless the constant repetition of claims will make employers apprehensive of the worth of inclusion of such programs in their benefit schemes. It is hoped that the few who sue will not overpower the many who recreate.

The Local Program

THE particular athletic injury experience to be described statistically is that stemming from a multiphasic recreational program which has existed at an atomic energy research laboratory since the building of the institution. The Oak Ridge National Laboratory, created in late 1942, was one of the several installations developed as part of the Manhattan District Project for the fabrication of the atom bomb. Following its successful participation in the World War II nuclear energy program, it grew into a 3,200-man enterprise engaged in basic research, reactor design and development, the production of radioisotopes, training for engineers and scientists, and the application of atomic energy to both peace-time and security-guarded undertakings.

Because of the confinement of the Laboratory personnel (in fact all the residents of Oak Ridge) during the early war days, and the physically and psychically limited demands of secrecy, a recreation program was founded, to offer after-work exercise, play, competition, and pleasure to those workers and their families transplanted to this new community bulldozed out of the rolling countryside of East Tennessee.

The Laboratory shared in this program. Its personnel played in the symphony, bowled in the plant leagues, played baseball and basketball, cavorted on the trampoline canvas, raised African violets, hunted for minerals, crowded into photographic darkrooms, produced plays, went hiking in the Appalachian Trail's end in the Southern Highlands, effectively spelunked in adjacent hollows, and square-danced indoors and out. Of this wide spectrum of recreational indulgences, only certain bands will be studied, for it is the injury picture we wish to describe.

The recreation program has always had its own director, a member of the Industrial Relations Division, who devoted full-time to the program. He arranged for team formation, for intra- and extra-mural games, for publicity, and procured

the equipment appropriate to the activity. Supporting the entire effort is this policy as expressed in the Laboratory's book of standard practice procedures: "It is company policy to promote recreational programs of general interest to all employees by encouraging employee participation in sponsored social and athletic activities, and, when necessary, to provide aid in planning, securing facilities, and arranging publicity for sponsored activities."

These activities comprise the program: badminton, baseball, basketball, bowling, checkers, chess, chorus, band, and music listening group, Christmas party, dances, dramatic group, fishing, gem cutting, horseshoes, life saving, "Little League" ball club, participation in the symphony, picnics, pistol and skeet, softball, swimming, tennis, touch football, volleyball, wives club.

Employees and their families participated in many of these activities, and it is believed that considerable "good" came from recreation. Untold, however, has been the record of injuries sustained in this kind of league athletics and, whereas this has been underplayed in medical reportorial coverage everywhere, the experience at the Laboratory will be related. The period reviewed is three years, from January, 1950, through December, 1952, and represents a cross-section of the sports participated in, and took place during fairly stable employment with a Laboratory population of 3,100 ± 100.

Table V demonstrates the number of injuries received in various activities, distributed by sex.

TABLE V.
NUMBER OF EMPLOYEES SUSTAINING INJURY BY TYPE OF ATHLETIC ACTIVITY JANUARY, 1950, THROUGH DECEMBER, 1952

Activity	Male	Female	Total
Softball	162	17	179
Baseball	16	0	16
Basketball	20	2	22
Touch football	8	0	8
Volleyball	1	0	1
Bowling	1	0	1
Horseshoes	1	0	1
Golf	1	0	1
Totals	210	19	229

No accurate records were available of the total number of employees participating in these sports, so that percentage studies would not be valid.

In Table VI, the types of injuries encountered are given by type of activity.

From the foregoing it may be seen that contusions, and strains and sprains represented the majority of the types of injuries sustained.

In Table VII there are shown the body parts injured, by type of activity, considering also the multiple injuries (273 injuries were sustained by 229 players).

It is obvious that injuries to the extremities are far more frequent than those occurring elsewhere, and this is of particular significance in a group engaged in fine precision work, where even

TABLE VI.
TYPE OF INJURY BY TYPE OF ACTIVITY
(Includes Multiple Injuries)

Type of Injury	Softball		Baseball		Basketball		Touch Football		Volleyball		Bowling		Horseshoes		Golf		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Contusions	60	28.5	10	40.0	4	16.0	3	37.5	0	0	0	0	1	100	0	0	78	28.6
Abrasions*	49	23.2	6	24.0	4	16.0	1	12.5	0	0	0	0	0	0	0	0	60	22.0
Fractures	29	13.8	2	8.0	1	4.0	0	0	0	0	0	0	0	0	0	0	32	11.7
Sprains and Strains	54	25.6	5	20.0	13	52.0	2	25.0	1	100	1	100	0	0	1	100	77	28.2
Lacerations	12	5.6	2	8.0	1	4.0	2	25.0	0	0	0	0	0	0	0	0	17	6.2
Dislocations	5	2.4	0	0	2	8.0	0	0	0	0	0	0	0	0	0	0	7	2.6
Foreign Body of Eye	2	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.7
Totals	211	100	25	100	25	100	8	100	1	100	1	100	1	100	1	100	273	100

*Includes friction or "brush burns," and friction blisters.

TABLE VII.
BODY PART INJURED BY TYPE OF ACTIVITY
(Including Multiple Injuries)

	Softball		Baseball		Basketball		Touch Football		Volleyball		Bowling		Horseshoes		Golf		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Fingers and Hand	63	32.3	4	23.5	5	20.8	0	0	0	0	1	100	0	0	0	0	73	29.5
Wrist, Forearm, Arm	27	13.8	2	11.8	2	8.3	1	12.5	0	0	0	0	0	0	0	0	32	13.0
Head and Neck	7	3.6	0	0	2	8.3	3	37.5	0	0	0	0	0	0	0	0	12	4.5
Shoulder	5	2.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	2.1
Thorax	5	2.6	0	0	1	4.2	0	0	0	0	0	0	0	0	0	0	6	2.4
Abdomen	1	0.5	0	0	1	4.2	0	0	0	0	0	0	0	0	0	0	2	0.8
Back	2	1.0	1	5.9	0	0	0	0	0	0	0	0	0	0	1	100	4	1.6
Hip	7	3.6	1	5.9	0	0	0	0	0	0	0	0	0	0	0	0	8	3.2
Ankle, Leg, and Thigh	68	34.9	7	41.1	11	45.9	3	37.5	1	100	0	0	1	100	0	0	91	36.7
Toes and Foot	10	5.1	2	11.8	2	8.3	1	12.5	0	0	0	0	0	0	0	0	15	6.2
Totals	195	100	17	100	24	100	8	100	1	100	1	100	1	100	1	100	248	100

though the employee may be at work, his incapacitated finger or hand will render him ineffective during the healing process.

Next, the occupational breakdown of recreationally injured employees is given in Table VIII.

TABLE VIII.
EMPLOYEES SUSTAINING INJURIES BY OCCUPATION

Occupation		Number	
Professional	Scientist	39	94
	Engineer	54	
	Nurse	1	
Technical	Draftsman	12	52
	Technician	40	
Managerial and Supervisory Personnel		14	
Crafts		22	
Operators		11	
Clerical Personnel		29	
Protective Personnel		7	
Total			229

It is noted from this listing that "anyone can play," and does. All personnel participate, and the seven major occupational categories are well represented. The engineers seem to injure themselves more, maybe because many of them are younger, and more will engage in athletic activities. Some are not too far removed from college, and this represents a continuation of intramural sports.

The recidivists are shown in the next table.

TABLE IX.
EMPLOYEES INJURED IN MORE THAN ONE RECREATIONAL SESSION

26 employees sustained	2 injuries
2 employees sustained	3 injuries
1 employee sustained	4 injuries

In 1950, 7 employees (10%) sustained 23% of the injuries.
In 1951, 10 employees (14%) sustained 30% of the injuries.
In 1952, 6 employees (9%) sustained 20% of the injuries.

Unfortunately, there are probably "accident-prone" individuals in this group, and two workers are known to the writer whose injury records at work and at play always parallel one another. (The term "accident-prone" is not used in the sense that there is such a specific personality configuration, but that with a certain unstable emotional economy, an individual will injure himself more frequently.)

It is regretted that no age division can be provided of the 229 injured participants, but incomplete data would not permit this.

There are some particulars of interest in connection with these injuries which are not provided by the numerical tabulations. For example, a few days before her marriage, a laboratory technician was bowling, and she allowed a return ball in motion on the rack to "catch" her finger, and cause a fracture—it was the fourth digit, left hand. The ceremony was altered to accommodate the splinted, bandaged finger. Spike wounds are frequent, and it was in a single game that one employee had his nose fractured, and a hand stepped on while "covering the bag."

Another player slipped while fielding a ball, and his head struck a fence, requiring sutures for multiple lacerations of the scalp. Contusion of the chest resulted in one participant in baseball when he was rammed by the head of another player. Many have been the permanently deformed "baseball fingers," with enlarged interphalangeal joints, or terminal phalanges left with flexion deformities, or subjective tenderness on use of such digits.

A 41 year old supervisor, overweight, out of condition, and filled to overflowing with family problems, errant children, and psychosomatic difficulties, had a myocardial infarction while on the baseball diamond in plant league play. (His episode occurred before our tabulation.) And even an umpire can be injured—one employee who supplements his income through serving as umpire or referee at school and plant league contests, was struck on the head by a thrown ball, necessitating hospital observation and treatment for the concussion for a brief period.

Unmentioned have been the temporary cosmetic defects resulting from fractured teeth, received in the recreation program.

Local arrangements were made in some instances to counteract the difficulties of the kinds enumerated in previous sections. There was no specific rider on the workmen's compensation insurance carried by the Laboratory, but, out of recreation funds, $50 could be paid to an injured employee to defray medical expenses. This was used rarely, for ordinarily the Health Division would provide care for the injuries. Infrequently, though, an injured player would seek attention at the hospital in town, and reimbursement of the costs (up to the $50 mentioned) would be made.

The visits to the dispensary were numerous, and represent a certain amount of time lost from work, an expenditure in the form of medical supplies, and time of the medical staff. For example, in 1951, there were 73 initial visits for athletic injuries, and 133 repeat visits, or a total of 206. The next year, there were 80 and 92, in each category, to total 172.

The Health Division would review the clinical records of all employees scheduled for first aid training, calisthenics programs (fire-fighter training), emergency squad training, but only rarely was this done for the athletes—on one occasion when it was accomplished, and some of the players were not recommended for participation, the complaints were numerous. There is some virtue in a clinical record review, even if no physical examinations are performed, for it brings to mind clinical conditions or behavior patterns that may be pertinent. For example, when it was learned that a regional professional football team was being organized, and that some of the Laboratory players were contemplating joining, we sought their occupational injury experience from the records. One employee, who consistently was involved in accidents on the job, was predicted as the man first to be hurt. The forecast was sound, for with the first practice scrimmage he was injured, and observed his teammates for the remainder of the season from his seat on the bench. (His home accident pattern closed the triangle of injuries: at work, at play, and at home.)

Each year, however, at the beginning of the post-vacation recreation program, a talk would be given on the important features of a safe participation in plant athletics, but this did not reach the hundreds who were engaged in one activity or another.

Recommendations

ACCEPTING industrially sponsored recreation programs as established entities, what can be done to delimit the carnage that accompanies these efforts toward better employee morale or benefits to the company, whichever is the more appropriate?

LEADERSHIP—It is recommended that the individuals selected as recreation directors in industry be trained workers, not only possessive of a knowledge of the workings of their programs, but with a live interest in the employee-participants. This interest is one based on a liking for people, on some understanding of human drives and motivations, and on a desire to see enjoyment and relaxation accrue *to the recreator* rather than injury or emotional upheavals following a lost game. He should instill into the players the spirit which Ralph Coppock, Recreation Director of the Continental Oil Company, felt sufficiently strongly about to have inscribed over the entrance to the Conoco gymnasium—"sportsmanship is greater than victory." Too often do industrial workers go beyond their capacities for the sake of the score.

Haniford's survey[36] showed that in 1945, of 212 recreation leaders, six were name players, 46 had training in physical education or recreation, and the other 70% has backgrounds unrelated to the activity for which they were responsible. Only four of the five large automobile companies[37] studied had a full-time recreation leader.

The National Industrial Conference Board Report[15] cited previously showed that there were 65 full-time directors (64.6%) in 264 companies, while 43 part-time directors served 43 companies, and 59.1%, or 156 organizations had no recreation director.

If a large concern encourages a recreation program, leadership should be provided of the highest possible quality. Eastwood[7] feels that the director needs to have some of the characteristics: "(1) talent in business operation and the understanding of people; (2) ability to establish satisfactory public relations through interpretation of the program both to employees and to employer; (3) a sincere love of people; (4) a keen sense of humor; (5) the ability to keep himself out of the limelight and to lead from within or behind rather than in front of the group; (6) fair skill in a large number of recreational activities and outstanding skill in several; and (7) a good grounding in the philosophy and methods of industrial recreation as well as in industrial relations and labor policies."

He who possesses these qualities and remains mortal will be in demand. To paraphrase, a director's lot is not a happy one. It is he who must accompany the teams in all of their evening play, in town or out. Others work eight-hour days, he possibly 12 or more. While he assists others in obtaining the values of a full program, his wife is husbandless many nights in the week. This program has further demands in that he should be as equally skilled in working with children and wives as with the employees themselves, for most programs are family-wide in scope.

In essence, he should know the capacities of his charges, and not let them exceed them, irrespective of demands.

FITNESS—A player should be physically fit. This means that taking part in plant athletics should represent a continuum of his normal recreational pattern, not a new venture after 10 to 15 years of relative physical inactivity. This is implied in the term "fit," the ability to bounce back, as Fishbein once defined it. Years spent in desk work, in fat accumulation, and in driving all distances will not make for an individual who, at sport season's call, will be able to dash from plant to playground, and in minutes pick up where he left off in his athletic salad days, years before.

There must be ample time given for conditioning, for relearning the techniques of skilled coordinated effort, and for re-estimating one's capacities in the light of added years and pounds. Perhaps one no longer can play basketball, but could have considerable pleasure from volleyball. A realignment of values is needed, for what youth could do, age may not permit. And "age," as used here, is not the domain of the octogenarian or nonagenarian, but age in the sense that it is thought of in professional baseball, where a man in the thirties is considered old.

This means that there must be sufficient time given to practice long before a season opens, and the director should judge an employee's ability to keep up with his colleagues. It is to be remembered, also, that nearly every recreational function—apart, perhaps, from the noontime horseshoes thrown outside the shop—is undertaken after completion of a full work day, when a person has given already eight hours of effort. This is not the usual ideal preamble to an athletic event.

Ordinarily one sees the "7:00 P.M. athlete" dash home, change into playing clothes, veritably gulp his dinner, and then careen down to the park to get there by starting time.

This neither makes for relaxation, nor for conviviality at home. At game's end come the inevitable hamburgers and beer at a late hour, and thus concludes the day of work and pleasure.

PHYSICAL EXAMINATIONS—The paucity of examinations in industry of its recreation participants has been detailed previously. An appraisal before the season's start can be of inestimable service to an employee with incipient organic change. It has been shown fairly conclusively that only pre-existing disease can cause cardiac enlargement, and "that the normal heart cannot be dilated beyond its physiological limit, nor will a bout of strenuous exercise 'strain' the healthy heart muscle or cause it to fail."[55] This is not the

fear, then, of industrial athletic competition, but the fear is that the asymptomatic atherosclerotic individual will go undetected into "the playing fields" to tax an impaired cardiovascular system.

Complete physical examinations should be conducted on all players, including a chest film and electrocardiogram. For those partaking of strenuous activities, this is particularly pertinent. In those industries where Medical Departments exist, such examinations could be arranged with relative ease—if the company wishes a minimum of untoward results in its program of recreation. Those to whom excessive exertion would be harmful should have the physical findings explained to them, and referrals to their physicians should be effected so that definitive diagnostic studies and treatment can be initiated.

It is of interest to learn that an eight-member group has been working on the problem of medical examinations for athletes, with the American College of Cardiology acting in an advisory capacity.[56] This Study Committee has been "conducting a nation-wide study of the medical side of sports with the active cooperation of 15 colleges and universities. . . . Facts being sought include incidence of athletes who have died, and age, cause of death, and autopsy findings."

First Aid Training—Many industries have classes in first aid as part of their regular training program. Some utilize the American Red Cross facilities, others the Bureau of Mines program. These courses should be given to the recreation program directors and participants, so that if an injury is sustained by a player, intelligent early first aid might be instituted. The case of the escharotic for coagulation should be relegated to limbo, as should the utilization of unsterile dressings or other miscellaneous medical materials found frequently about a gymnasium. Experience of this kind would preclude a person's playing beyond the time of injury with the potential of increasing tissue damage. Medical care could be sought, and the player could be comfortable in the interim.

Playing for the Game's Sake—This has been alluded to before—the concept of playing for pleasure and companionship, rather than for doing or dying for old Siwash Tool, Bolt & Bearing Company, Inc. To have a team feel this kind of recreation spirit is difficult in our competitive culture, where we must win, be the biggest, be the best. Herein lie the skills of the director. Of course, this orientation is not aided by the medals, cups, statues, and plaques which go to the winners after the finals. There is always mantle space to accommodate these.

A variation in standard play is possible, perhaps, which will allow the idea-fixed enthusiast to play his hardest and fullest—but for a briefer time. This is the scheme of permitting many more people to play on a team, and in a game, by limiting the number of innings or quarters per player. Apart from spreading the fun of intra- and extramural competition, it will shorten the individual effort expended by participants. The slow pitch league is a variation of this theme.

Reporting of Injuries—All injuries and untoward medical events taking place in company sponsored programs should be reported to the plant Medical and Safety Departments. This has been asked for by many of the writers quoted in the early portions of this writing, but it is something rarely seen in industry. This would permit better care of the injured worker through Medical Department follow-up, and would allow the safety engineers to learn of the reasons for athletic injuries, both personal and environmental. Following this, a joint effort could be made to minimize these happenings. Only through a study of serial statistical summaries can action be directed toward cause-removal.

Treatment of Injuries—Whenever possible, the company sponsoring the recreation program should also provide the medical care for the injuries sustained in such a program. If this is not feasible because of the absence of Medical Department facilities, arrangements should be made with a clinic or practitioner to render such care. In the large industrial Medical Departments facilities for care, surgery, and physical medicine exist, and should be utilized for these workers, as they are for those becoming injured in the course of their employment. Attentive interested care on the part of the company early in the history of the injury, would obviate many later appearances in court because of a disgruntled employee who was hurt doing something which the employer established for the worker's benefit.

Insurance Coverage—Because of the injuries that arise from these recreational undertakings, and in the light of many claims filed where no coverage was established to care for this kind of contention, every organization carrying on a program of this type for its employees should be protected through one of the current insurance methods. This means a rider on the workmen's compensation policy, a company group insurance plan to include this, a rider on a personal liability policy, or special insurance written for this purpose alone. With transportation problems as they are, no company should have its recreational program without this protective essential. Most team trips are made in privately owned cars, as rarely will there be a company bus furnished for this. A variety of drivers will be encountered, there will be certain post-game celebrations (win or lose), and as industrial players rarely adhere to the strict training principles of college teams, the chances of road accidents are greater.

Research—Much can be and much needs to be done, relative to industrial recreation in learning of needs, methods, and unexplored areas of activity. For example, the special problems of the so-called "company towns" should be looked into to increase the recreation potential. Many of these communities are well supplied with after-hours "things to do," while others have settled into a lawn-mowing routine which is totally unvarying and unstimulating.

Little is provided for transient labor. When a large construction project is undertaken in an industrial plant which has been established, the

workers who come in for the building have little to do at the end of the day, and may populate the local lock-up more than is desirable. They should be given recreation facilities as are the workers in the community where the former are migrants. Whether the construction company will do this, or if means will be provided by the company whose plant is enlarging, must be determined. At the moment, the problem has not been resolved.

Only recently have efforts been directed toward providing recreational activities for our aged workers. Be they called "senior citizens," or "golden age clubs," some form of center or get-together should be created for them, for their interests, pace of activity, and needs are different. Many communities are working on this problem now, and state departments of health have interested themselves in this area. With industry's retention of older, skilled workers, this will be necessary thinking.

Little consideration has been given the physically handicapped worker, and usually he is a home hobbyist, with radio, model airplanes, model railroads, philately, or gardening. As all of the physically limited are not the agile wheel-chair performers one sees in army and veterans administration hospitals, new kinds of group work must be designed with the physical exception and the personality pattern of the impaired in mind.

Stumpf and Cozens[57] have suggested inquiring into the physical education and recreation of other cultures. Perhaps rather than tracing "the intricate interrelationships of our field with other social phenomena," study could be undertaken to determine ways of utilizing recreation in our business establishments abroad that will integrate the employed native workers, and thus give them a better concept of this country. If our nationals in the foreign branches could attempt to mix athletically with the people in whose country they are representing the industrial United States, rather than remaining evening isolationists, perhaps more good will and improved relations would result than are ordinarily accomplished over a polyglot conference table, translators notwithstanding.

Gulick[58] in his recent address at the Thirty-Fifth National Recreation Congress in Philadelphia decried the city as a place to live and work in. Cities are built around industries—and will continue to be so until dispersal is in full force—and industry should be interested in his words: "Great cities and great cultures must have great plans and opportunities for recreation. The greater the pressures and pace of work and life, the broader and bolder must be the recreational program. This is necessary, not to save the cities, but to make life richer and better balanced for the people who live in the cities." He continues: "Recreation as thus viewed embraces the full breadth of the modern concept of recreation. It includes everything which serves to re-create his being."

The new National Advisory Committee on Recreation Research, mentioned by Gulick, will endeavor to become familiar with current research, and determine what tenets and practices of recreation require more scientific study. The five categories of research in the field of recreation he suggests are: First: "We need to know more about human needs for the healthy and happy life. . . . While we are, naturally, especially concerned with the recreational use of 'free time,' we must not overlook *the recreational aspect of other factors such as the work environment*" (Italics ours). Second: "We need to know more about the measured successes and failures of various programs in fulfilling these human needs for recreation." Third: "We need more analysis of community support for validated recreation programs, and a better understanding of the relation of recreation to the economic well-being of the community and to its power to support recreation, whether through taxation or through voluntary means." Fourth: "We need to explore and understand the institutional factors, that is, the complex of public and private, formal and informal, organized and unorganized, in-the-home and outside-the-home, commercial and non-commercial, recreation and the several successful patterns which may evolve in a free society!" Fifth: "We must not overlook the many internal and professional problems having to do with standards, personnel, facilities, education, groups, and activities."

Industry is interested in all of these areas of research, and it is hoped that its recreation directors will be included in the early research explorations.

Lastly, it is felt that personality evaluations should be carried out on persons successful in various athletic efforts in industry. What makes for the top flight sports participants? How do his activities match his work capacity or accomplishments? Could industrial recreation be used therapeutically for the numerous emotional problems presented by people at work? Could such a study guide vocational counsellors in schools? If occupational choice is personality-determined—as some think—an unusual opportunity awaits for the researcher. Sperling[59] in giving "educational implications," stated that his study was "educationally significant in that it has indicated that a more socially desirable degree of personality development accompanies a greater degree of experience in physical education activities . . . . a similar degree of personality development will be found among varsity athletes as among intramural athletes."

Perhaps industries should continue research of this type and, more scientifically, aid themselves in the selection of supervisors. Much can be done, and some of the budget devoted to recreation programs well could be directed to a study of what has been going on for years—without accurate inquiring observations.

The Future

RECENT happenings that bespeak trends are noted. Following long after similar interest abroad, the Board of Trustees of the American Medical Association[60] appointed at its February

15-16, 1954, meeting in Washington, a Committee on Injuries in Sports, which will confer with national organizations in this field. From this may come recommendations for preventive medical action in industrial as well as professional athletics.

Danford,[61] in a current publication, predicts that our electronic age will produce a reduction in the work hours per week, and a growing preoccupation "with the use of time for non-labor purposes, first recreational, and second creative." In his forecast of the program of the future in recreation he envisions the raising of professional standards for directors, and "the development of a highly specialized body of knowledge." His views as they relate to industrial recreation are gray, for he predicts: "A gradual decrease in industrial recreation as more communities provide tax-supported programs and workers prefer to participate as citizens in a common program rather than as workers in an industrial program."

This might come to pass, but as long as communities are slow-paced in their efforts to build programs, the American worker will prefer to share his recreational experiences with his friends on the job—bigger and better experiences than are found now in most communities.

Most fascinating, however, in this day of international dis-ease, was the 1952 situation in basketball competition between Russia and the United States.[62] This country was represented, as mentioned previously, by players from two large industrial organizations, the Caterpillar Tractor Company and the Phillips Petroleum Company. This American industrial dominance in basketball and its industrial teamwork operation presented a new thought to the Russians who had not considered making sports an integral part of industrial production. Not too many Americans were aware of this extrapolation of recreation at work to its entry into the international scene. May it be productive of good!

Summary

1. RECREATION programs in industry have represented an historical development involving 24,000,000 participants, with an annual expenditure of $163,000,000.

2. The rise of these programs has been based on man's need for relaxation, mixing with his fellow workers, and feeling of contribution and sense of recognition. Employers have realized values in a bettered production, *esprit*, and efficiency.

3. These activities are ordinarily carried out during the worker's free time, are sponsored by employers or cooperatively with employee groups, and include the full range of athletic, cultural, social, and outdoor group functions.

4. Industrial sociologists have appraised the values of these programs in the past and have demonstrated significant differences between participants and non-participants in employee desirability, and have suggested an increased efficiency on the job.

5. Current developments have shown a greater utilization of full-time program directors, and an increase in company-employee, and community-company co-operation. A lack of records in this area has been a deficiency making future research difficult.

6. Injuries have been an undesirable end-product of these programs, and interest in them has been spearheaded by the active investigation and correction of the ill physical effects of professional boxing. Reviews of intramural sports and industrial athletics have demonstrated a broad spectrum of incapacitating injuries, with considerable time lost from work.

7. Inconsistencies in insurance coverage for injuries or medical care have led to innumerable claims, suits, and involved proceedings with industrial commissions and courts of appeal.

8. The four guiding principles underlying many conflicting recreation cases brought to court are these: (a) compulsion on employee to participate in the recreational activity; (b) advertising and other "benefits" secured by the employer from the recreation; (c) "settled practice" of recreation on the employer's premises during the lunch hour; and (d) supervision of the activity.

9. Medical examinations of participants have been carried out in few instances in industry, although preplacement physical examinations have been common in the same organizations.

10. The recreation program at an atomic energy research laboratory of approximately 3200 employees was reviewed, and the variety of activities was shown to cover nearly all of the facets of such programs, athletic, cultural, hobby groups, etc.

11. The injury experience of the study group showed that in the three-year period of observation 229 participants sustained injury in eight different sporting efforts.

12. The majority of the injuries encountered included contusions, strains, and sprains, and approximately 36% involved the ankle, leg, and thigh, with fingers and hands second at 30%.

13. In a scanning of the occupations of the injured employees of the study group, 94 were in the professional category, 52 technical, and the remaining 83 scattered among supervisory personnel, craftsmen, operators, and clerical and protective personnel.

14. Interestingly, 26 employees sustained two injuries, two suffered three injuries, and one individual had experienced four separate injuries.

15. In the three years, an average of 11% of those injured sustained 24% of the injuries.

16. The following recommendations are made: (a) That individuals selected as recreation directors be trained workers in this field, with leadership skills. (b) That employees undertaking athletic participation in industrially sponsored recreation programs be physically fit for this activity, having given themselves time for reconditioning after periods away from the sport. (c) That pre-season physical examinations be performed on industrial athletes to recognize disease changes early. (d) That all members of teams be trained in first aid so that injuries sustained in

play can be kept at a minimum level of tissue damage. (e) That the concept of playing for the game's sake be emphasized rather than playing solely for the final score. (f) That all injuries received in this kind of sport be reported for future preventive care. (g) That medical care be provided for these injuries by the sponsoring company either through its industrial health service, or through contractual arrangements with an outside clinic or practitioner. (h) That insurance coverage be established to obviate the numerous claims arising from this recreation effort so that future developments in industry for many will not be stopped by a greedy, badly motivated few. (i) That research into these unexplored fields of industrial recreation be initiated: recreation in "company towns"; recreation for transient laborers; recreation for the aged worker; recreation for the physically impaired employee; the personality configuration of the successful plant athlete.

17. Industrially sponsored programs in recreation should continue to contribute players to international contests so that this phase of democratic living may have demonstration abroad.

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Unplanned Radio-Wave Diathermy at the Place of Work

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RECENT comment in *Industrial Medicine and Surgery*[1] concerning a claim for alleged injury due to work near electric equipment stimulates presentation of the bizarre case of a carpenter whose injured hand was affected adversely by work in the immediate vicinity of electronically motivated high frequency glue-drying machinery.

On March 1, 1954, Mr. G.F., a 58 year old white carpenter was struck by a flying wood block sustaining destructive lacerations of the left hand, index and middle fingers, and a shattering compound fracture of the index proximal phalanx. In repair two main fragments of the phalanx were maintained by a small dorsally placed stainless steel plate held by two stainless steel screws (Figs. 1a and 1b). Ten days after injury a plaster cast on hand and forearm was replaced by a padded, anterior aluminum splint of half-hard 2-S aluminum, extending from finger tips to upper forearm. Figs. 2 and 3 show placement of the internal plate and the aluminum splint with padding removed. Progress was excellent with rapid healing and no redness, heat or swelling; increasing finger, hand and arm motion was well tolerated, and sutures were removed in 12 days. No complications were seen, and the patient asked permission to return to supervisory work 22 days after injury, a request we unhesitatingly granted.

Seven days later, at his next visit, the hand and finger were widely swelled but no temperature change or local heat was noted. All bandages were replaced, carefully avoiding constriction of fingers, hand and wrist. Ten days later swelling was still wide-spread and a broad felt pad was placed over the rear of the hand doubly to assure freedom from constriction by wrappings. Swelling continued to appear during the day and improve each night. About two weeks after its appearance the worrisome swelling disappeared as mysteriously as it had come. A few days later an innocent question by the patient opened the door on our mystery.

At his work place, Timber Structures, Inc., varied wooden beams, trusses, arches and the like are laminated by gluing boards and planks together. Many of these shaped forms are rapidly dried by use of penetrating high frequency radio waves directed through the glued beams and so pre-set that drying heat is generated deep within the beams. An early model of this machinery is shown in Fig. 4, as used to produce so-called "barn arches," curved rafters for barns. Interference with local radio broadcasting necessitated subsequent heavy wire screening of these machines; they "broadcast" at varied wave lengths in the region of 13,500,000 cycles/minute. Our patient's work required his presence near these electronic machines many times each day. He inquired why his hand seemed to become more painful when working in the vicinity of the glue drying machines?

In retrospect it was readily established that during the period of unexplained swelling he would work for 15 or 20 minutes in the glue drying area and then move to other duties. After several days he noticed what seemed to be a direct relationship of time spent at the glue dryers to gradual onset of internal aching and burning pain; applying "Koch's postulates" he demon-

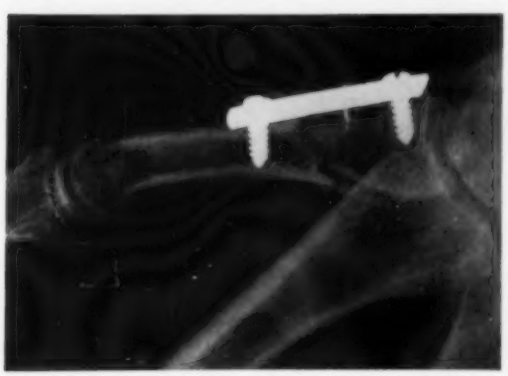
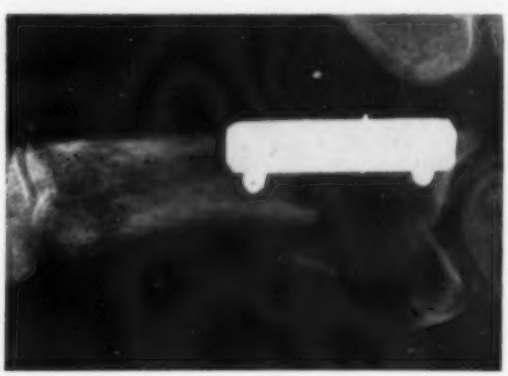


Fig. 1a.



Stainless steel plate on proximal phalanx. Fig. 1b.

strated that "electronics" at work were painful to him, and when he remained away from the drying rooms pain did not recur. His pain and swelling disappeared at about the same time.

Further questioning of electronic engineers confirmed the presence of high concentration of vagrant radio waves in the immediate neighborhood of the glue machines. Under some circumstances these have been known to illuminate a fluorescent lamp tube held in the hand of a workman close by the operating dryer. The engineers held no doubt that our patient had been receiving unplanned diathermy through juxtaposition of his small stainless steel plate and his large aluminum alloy splint, carried into rapidly oscillating fields of high frequency radio waves.

As healing of bone advanced and the aluminum splint was abandoned we had difficulty persuading Mr. F. to return to the glue room area. He has now done so and the diathermy effect is gone.

COMMENT: There are many reasons for post-injury swelling none of which seemed present in this case. Although we have not previously encountered the same phenomenon, its basis in fact seems well founded. Pain in the "heated" hand probably was more intense because of presence of traumatized and unhealed tissues. Healing was not expedited by the subject "diathermy," but with exception of the period of pain and swelling progress has been excellent and the end result quite satisfactory.

Fig. 2.
X-ray showing position of stainless steel plate and externally applied half-hard 2-S aluminum splint for fractured finger.

Fig. 3.
Aluminum splint applied to injured hand. Padding removed for clarity of illustration.

Those working with the described high frequency machines have received superficial burns from "arcing" when moist skin surfaces approach too close to the machine's electrodes. The "arc" can be interrupted by sudden withdrawal of the extremity. Burns have been variable but shallow and not in any way approaching severity of the usual electric current burn. One such case displayed ulnar nerve irritation from elbow to hand for about 30 days with full recovery; no other nerve lesions have been seen and burns have responded to local therapy in a few days.

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Fig. 4.
Electronic glue drying machinery which produces curved and finished "barn arches." Glue is dried by high frequency radio waves in a few seconds.

Study of Non-Occupational Diseases in an Industrial Plant

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THE employees of the company under study, who are absent more than one week because of a non-occupational illness, are required to clear with the Medical Department before they return to work. The department is furnished with a standard form when the employee appears before it. It bears certain information such as the first day of his absence, his doctor's diagnosis, and the date when he is permitted to return to work. From it, one can readily determine the nature of an employee's illness and the length of his absence from work. In evaluating these individuals, it was interesting to observe the disproportion that existed between the length of absence and the nature of the disease in a number of employees. For instance, in the case of some employees who returned to work after having a cold, grippe or a sore throat where an estimated period of recovery should be about one to three weeks, it was suprising to find that the absences varied from four to 16 weeks. Others who had operative procedures where an estimated period of recovery should be about eight to 10 weeks were found to be absent from 20 to 30 weeks. This seemed unreasonable and, in some cases, unjustifiable. The company provides a medical and surgical benefit plan for its employees and it is paid entirely by the company. The purpose of such a plan is to make payments to employed persons when they are temporarily disabled from work because of non-occupational illness. Weekly benefits are paid to the employees commencing with the eighth day of disability for sickness, and non-industrial accident.

Purpose of Investigation

THE heavy impact of illness on industry has become the focus of attention by several groups which have undertaken studies to determine the cost of long absence. Employers are fully aware of the expenses and added losses in production due to absenteeism, especially those of prolonged duration. This study is presented as an analysis of the absentees in the company. An attempt is made to determine the time lost by employees, the relationship of the different sex and age groups, the type and incidence of the disease causing the absence, and the duration of the time lost from work. An attempt also is made to appraise some of the diseases as to an estimated period of recovery from a disability, the actual time the employees were absent, and an estimated extra time loss when they were away from work at the company's expense without apparent justification.

Case Material

THE employees investigated were the absentees who had been away from work more than one week because of a non-occupational disease or accident. Absences from one to seven days have not been included. The investigation is limited to those who work in the New York plants of the company. Employees belonging to the general office and the New York City sales branches have been omitted from this study.

During the year 1953, the average total of employed persons was 3,720. Of these, 1,805 were men; 1,915 were women. The number of absentees, who had been away more than one week, for the year was 996, of whom 318 were men and 678 were women. The record of absenteeism revealed that one out of every 3.7 employees (26.8%) had been absent from work more than one week because of a non-occupational disability. The rate for women was twice as high as that for men. One out of every 2.8 employed women (35.4%) was absent as compared to one out of every 5.6 employed men (17.6%).

Unfortunately, all the information necessary for the compilation of our data was not obtainable for the total absentees. In searching through our files, only 713 completed individual records were found for evaluation. The following results of the study are based on these 713 employees, who represent 71.5% of our total (996) absentees.

Age Groups, Sex, and Time Loss

A BREAKDOWN of the 713 absentees is shown in Table I. Among the men, the ages between 31 and 40 accounted for the greater number of absentees (32%), whereas, among the women, the greater number was between 41 and 50 years (37%). Of all the absentees, the greatest number were between 41 and 50 years of age. The

TABLE I.
ABSENTEES ACCORDING TO AGE GROUPS

	Men		Women		Total	
Age	No.	%	No.	%	No.	%
20-30	46	22.3	92	18.1	138	19.4
31-40	66	32	126	24.8	192	26.9
41-50	38	18.4	191	37.7	229	32.1
51-65	56	27.1	98	19.3	154	21.6
Total	206		507		713	

total time lost by these absentees amounted to 36,956 days, (101.25 years), equivalent to 26,397 working days. The average loss for each employee was 51.8 days, equivalent to 37 working days.

Since these 713 absentees represent 71.5% of our total (996), a floating force of about 147 people is necessary to cover those who are away from work because of a non-occupational disease. This is 3.6% of the employed force that have to be carried on our payroll.

The time lost by the 206 men was 9,540 days or 6,814.3 working days. The 507 women accounted for a loss of 27,416 days, equivalent to 19,581.9 working days. Prolonged absences were greater for women. Among the women, the average loss of time for each absentee was 54 days, whereas, among the men, the average was 46.3 days lost for each absentee. In other words, the average woman stayed away from work 7.7 days longer than the average man.

Incidence of Diseases

FOR the purpose of this study, the various diseases were put into nine major categories and tabulated according to the age groups, the number of employees having the disease, and the number of days absent due to the disease. Table II illustrates the incidence of disease in the 713 absentees.

It has long been known that the most common cause of absenteeism among workers is the respiratory infection. This was found to be true in this study. Our record showed a total of 245 respiratory infections (34.3%) causing an absenteeism of 6,485 days or 4,632.1 working days. The average absence for one employee in the 245 cases was 26.5 days. Comparing the age groups, it was found that those between 41 and 50 years were absent 29.3 days per person; between 51 and 65 years, 27.8 days; between 31 and 40 years, 26.9 days; and between 20 and 30 years, 19.6 days. The respiratory cases were arbitrarily subdivided into four groups. The major group comprised 194 employees who had returned to work with diagnoses under common entities of grippe, pharyngitis, nasopharyngitis, virus infection, flu and cold. These 194 cases caused an absence of 6,074 days (4,338.6 working days). The other three groups (remaining 51 of the 245 cases) were 22 pneumonias, eight sinusitis and 21 cases of bronchitis and tracheobronchitis. Among the diseases there were five cases of pulmonary tuberculosis. Although they belong with the respiratory infections, they were put into a separate group. There were four men and one woman, all under 50 years of age.

The next largest group was 143 medical cases, or 20% of the total absences. These were responsible for 7,252 days' absence, or a loss of 5,180 working days. The average absence for one employee in this group was 50.7 days. The age group between 41 and 50 showed a higher average of absence (57.5 days) for one employee than the other age groups. The ages between 51 and 65 were lower by 2.6 days per person. The average for the other two groups was about the same.

Considering that a good number of elderly individuals are employed by the company, it was surprising to find that not many were disabled because of heart disease. With the exception of tuberculosis, the lowest number of absentees among the diseases was the cardiac group (see Table II).

Among the 713 absentees there were 97 (13%) surgical cases which include major and minor surgery. The total time lost for these was 7405 days, or 5289.3 working days. The average absence for one employee was 76.3 days. In this series the older group showed the highest average of absence per person (97.6 days). The next lower average was 71.4 days per person in the 41-50 year group; 70.9 days for the 31-40 group; 68.8 days for the 20-30 year group.

Comparison of Male and Female Absentees

A COMPARISON of the absentees of both sexes for the same diseases is illustrated in Tables III and IV. The tabulations show an analysis of the employees as to (1) the number of absentees due to the disease; (2) the total days absent for the number of employees; (3) the percentage of absentees for that disease; and (4) the average number of days absent per person for the disease in the corresponding age group. The last column in each table represents the total number of employees having the disease and the aggregate number of days absent because of it, the percentage of absentees for the total in that disease and the average number of days absent per each person in the total for that disease.

There are several interesting observations worthy of note. In general, the women had a higher percentage of absenteeism among the respiratory infections, the medical cases, the psychoses and the psychoneuroses. The percentage of surgical, cardiac, ortho-

TABLE II.
DISEASES, NUMBER OF ABSENTEES, AND DAYS ABSENT IN AGE GROUPS

	20-30		31-40		41-50		51-65		Total	
Disease	No. Empl.	Days Lost	No. Empl.	Days Lost	No. Empl.	Days Lost	No. Empl.	Days Lost	No. Empl.	Days Lost
Respiratory infection	47	923	76	2047	80	2347	42	1168	245	6485
Medical	25	1031	29	1204	50	2876	39	2142	143	7252
Cardiac	—	—	1	57	5	444	11	742	17	1243
Psychosis Psychoneur.	3	469	7	474	13	810	5	343	28	2096
Surgical	11	757	32	2268	34	2428	20	1952	97	7405
Orthopedic	14	423	16	827	25	1132	19	1082	74	3464
Misc. Infections and Traumas	16	576	19	1265	18	744	16	675	69	3250
Tuberculosis	1	365	3	704	1	35	—	—	5	1104
Obstetrics and Gynecology	21	3685	9	782	3	79	2	101	35	4647
Total	138	8229	192	9628	229	10894	154	8205	713	36956

TABLE III.

MEN: DISEASE; NO. OF EMPLOYEES; DAYS ABSENT: % CASES IN DISEASE; AVERAGE DAYS ABSENT PER EMPLOYEE

	20-30				31-40				41-50				51-65				Total			
Disease	Number of Employees	Days Absent	% Cases	Average days lost/person	Number of Employees	Days Absent	% Cases	Average days lost/person	Number of Employees	Days Absent	% Cases	Average days lost/person	Number of Employees	Days Absent	% Cases	Average days lost/person	Number of Employees	Days Absent	% Cases	Average days lost/person
Respiratory	11	186	20.3	17	25	426	46.3	17	9	144	16.6	16	9	242	16.6	26.9	54	998	26.2	18.5
Medical	10	418	26.6	41.8	10	441	25.4	44.1	5	492	12.8	98.4	14	511	35.9	36.5	39	1862	18.9	47.5
Cardiac	—	—	—	—	1	57	8.3	57	4	360	33.3	90	7	611	58.3	87.3	12	1028	5.8	85.6
Psychosis and Psychoneuros.	2	290	28.5	14	4	399	57.1	99.7	1	56	14.3	56	—	—	—	—	7	745	3.3	106.4
Surgical	4	173	11.7	43.2	11	480	32.3	43.6	6	203	17.6	33.8	13	1092	38.2	84	34	1948	16.5	57.3
Orthopedic	9	273	28.1	30.3	8	278	25	34.7	9	525	28.1	58.3	6	342	18.7	57	32	1418	15.5	44.3
Misc. trauma and infection	9	130	37.5	30.3	5	379	20.8	75.8	3	55	12.5	18.3	7	238	29.1	34	24	802	11.6	33.4
Tuberculosis	1	365	25	365	2	339	50	169.5	1	35	25	35	—	—	—	—	4	739	1.9	184.7
Total	46	1835		39.9	66	2799		42.4	38	1870		49.2	56	3036		54.2	206	9540		46.3

TABLE IV.

WOMEN: DISEASE; NO. OF EMPLOYEES; DAYS ABSENT; % CASES IN DISEASES; AVERAGE DAYS ABSENT PER EMPLOYEE

	20-30				31-40				41-50				51-65				Total			
Disease	Number of Employees	Days Absent	% Cases	Average days lost/person	Number of Employees	Days Absent	% Cases	Average days lost/person	Number of Employees	Days Absent	% Cases	Average days lost/person	Number of Employees	Days Absent	% Cases	Average days lost/person	Number of Employees	Days Absent	% Cases	Average days lost/person
Respiratory	36	737	18.8	20.4	51	1621	26.7	31.8	71	2203	37.1	31	33	926	17.2	28	191	5487	37.6	28.7
Medical	15	613	14.4	40.9	19	763	18.2	40	45	2383	43.2	52.9	25	1631	24	65.2	104	5390	20.5	51.8
Cardiac	—	—	—	—	—	—	—	—	1	84	20	84	4	131	80	32.7	5	215	0.9	43
Psychosis and Psychoneur.	1	179	4.7	179	3	75	14.3	25	12	754	57.1	62.8	5	343	23.8	68.6	21	1351	4.1	64.3
*Surgical	7	584	11.1	83.4	21	1788	33.3	85.1	28	2225	44.4	79.4	7	860	11.1	122.8	63	5457	12.4	86.6
Orthopedic	5	150	11.9	30	8	549	19	68.6	16	607	38	37.9	13	740	30.9	56.9	42	2046	8.2	48.7
Misc. trauma and infection	7	446	15.5	63.6	14	886	31.1	63.3	15	689	33.3	45.9	9	437	20	48.5	45	2458	8.8	54.6
Tuberculosis	—	—	—	—	1	365	100	365	—	—	—	—	—	—	—	—	1	365	0.2	365
Obstetrics and gynecology	21	3685	60	175.4	9	782	25.7	86.9	3	79	8.5	26.3	2	101	5.7	55.5	35	4647	6.9	132.7
Total	92	6394		69.5	126	6829		54.2	191	9024		47.2	98	5169		52.6	507	27416		54

*One miscarriage, two dilitation and curettages and one uterine polyp had been included among the surgical cases.

pedic, and miscellaneous infections and traumatic cases was higher among the men.

Among the respiratory tract diseases, the women had over 10% more absentees than the men, and the average duration of absence for one employee was 10 days longer. The average absence for a man was 18.5 days, whereas, for a woman, it was 28.7 days. In the respiratory diseases, the men between 51 and 65 years of age showed the highest average of absence per person (26.9 days); among the women, the highest average of absence per person (31.8 days) was between the ages of 31 and 40 years.

Among the medical cases, the percentage of gastrointestinal disorders was nearly three times higher for men than for women. Out of the 39 men there were 21 diagnoses (53.8%) of gastrointestinal disease as compared to 20 diagnoses (19.1%) for the 104 women. The incidence of peptic ulcers was much higher for the men. There was only one case of "debility and nervousness" among the men, whereas, there were 20 similar diagnoses among the women. The men showed the highest average of absence per employee (98.4 days) in the 41 to 50 year age group whereas the women showed the highest average (65.2 days) in the 51 to 65 year group.

The percentage of psychoses and psychoneuroses was about the same for both sexes. There were seven cases among the 206 men (3.3%) and 21 cases among the 507 women (4.1%). The greatest number of cases among the men was in the 31 to 40 year age group, whereas, the greatest number of women was in the 41 to 50 year age group. The men showed the higher average of absence per employee than the women in this particular disease.

The 34 surgical cases among the men revealed 11 major abdominal operations, three herniorraphies and three prostatectomies. The remaining diagnoses consisted of minor to moderate surgical procedures. Five cases of malignancies were reported among the men. Of the 63 surgical cases among the women, there were 25 hysterectomies, 15 other major operations and three hemorrhoidectomies. Two malignancies were reported among the women. Of all the surgical cases, the men showed a higher percentage of absenteeism (16.5%) than the women (12.4%). Among the men, the age group between 51-65 years showed the highest percentage of absentees (38.2%) as well as the highest duration of absence per employee (84 days). Among the women, however, the highest percentage of absentees

(38.2%) was in the 41-50 year group, but the average duration of absence (79.4 days) was lower in this group than in all the female age groups.

The orthopedic cases comprised a variety of diagnoses, such as sprains, low back syndromes, sciatica, myositis, bursitis, etc. There was one laminectomy performed for a spinal tumor in a woman. The percentage of fractures was about the same. There were five fractures among the men and seven among the women. The percentage of orthopedic cases was higher among the men (15.5%) than among the women (8.2%). The age group between 41 and 50 in both sexes had the highest number of cases. (Among the men, the number of cases in the 20-30 year group was the same as the 41-50 year group.)

In the group of miscellaneous infections and traumatic cases, the percentage of absentees among the men was 11.6% as compared to 8.8% among the women. However, the average duration of absence was 21.2 days longer for women than for men.

In the series of the 35 gynecological and obstetrical cases, there were 17 deliveries, one Caesarian operation, two ectopic pregnancies and four incomplete abortions. The remaining diagnoses were of pelvic pathology and functional uterine disorders. (Note: one miscarriage, two dilatation and curettages, and one uterine polyp had been included among the female surgical cases.)

Unfair Advantage in the Sick Benefit Plan?

FROM the foregoing observations of 713 absentees, it is evident that the impact of absenteeism is an important concern of industry. It is a costly, disrupting factor, affecting production. This problem intensifies when the absences are prolonged and the employees remain away from work after the usual period of recovery from illness.

Sick or partially sick individuals are not expected to be on their jobs. Their work efficiency is impaired. This impairment adds to the loss in production. Management requests that sick persons should seek medical attention until they have fully recovered. For this purpose, it has provided a sick benefit plan, to make payments to those absent because of illness. The intent of such a plan was not to pay employees to vacation after their recovery or to absent themselves for other personal reasons. In other words, employers want the sick to stay away, to obtain the proper medical care, and to be provided with benefit payments until they are well enough to return to work. It would seem logical for the employers to expect, in a spirit of fair play, that the employees return to their jobs when fully recovered. Benefit plans are costly, and employers rightfully expect their operation not be abused. As under all beneficial systems there are some individuals who misuse or abuse their privileges and take unfair advantage.

The length of absence of our employees in relation to their diseases was analyzed. Comparisons

TABLE V.
ESTIMATED EXTRA TIME TAKEN BY MEN

Age Group	No. Men	Extra Days Lost After Recovery	Average Days for One	Days Absent	Estimated Days Should Be Absent
20-30	6	157	26.1	300	143
31-40	13	157	12.0	437	280
41-50	5	71	14.2	194	123
51-65	8	267	33.4	505	238
Total	32	652	20.3	1436	784

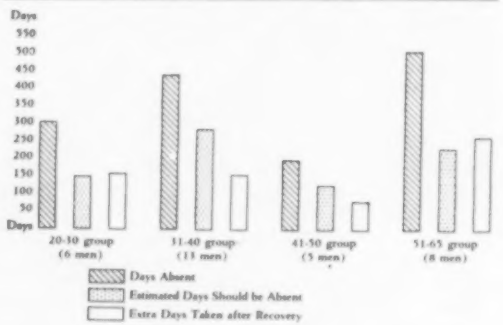

Fig. 1.
Excessive time taken by 32 men—a comparison by age groups.

were made as to (1) the length of absence of the employee; (2) a fair estimate allowance for the period of recovery from the disease; and (3) the estimated extra time taken by the employee when he was away from work. Consideration was given to factors such as, the type of disease, sex and age of the individual. Not all the diseases were appraised. Many of them were not included because the course of the disease during an illness was unknown. For instance, cases such as fractures, infections of a joint, certain surgical procedures where the course of events were undetermined, or diseases where complications might have occurred were omitted. Diseases such as tuberculosis, psychosis and psychoneurosis, obstetrics, cardiacs, malignancies and other chronic ailments were also omitted in the analysis. Only the obvious diagnoses that could be fairly judged were used in the comparison. The findings of this analysis would, therefore, represent only a fraction of the actual excessive time loss.

Tables V and VI compare the estimated excessive time loss in the men and women. The tables illustrate the number of employees in each age group taking the extra time, the estimated number of extra days, and the estimated average of extra days lost per employee in each age group.

Among the 206 male absentees, there were at least 32 employees (15.4%) who stayed away from work excessively. These represent a loss of 652 extra days or 465.7 working days. In other words, if these 32 men had returned to their jobs after full recovery, production would have been increased by the amount they could produce in 465.7 working days. The average loss of extra time for one man in the group was 20.3 days (14.5 working days). The greatest number of men in the group was in the third decade; the least number was in the fourth decade.

TABLE VI.
ESTIMATED EXTRA TIME TAKEN BY WOMEN

Age Group	No. Women	Extra Days Lost After Recovery	Average Days for One	Days Absent	Estimated Days Should Be Absent
20-30	33	856	25.9	1616	760
31-40	58	1939	33.4	3740	1801
41-50	87	3030	34.8	5929	2899
51-65	43	1692	39.3	3136	1444
Total	221	7517	34	14421	6904

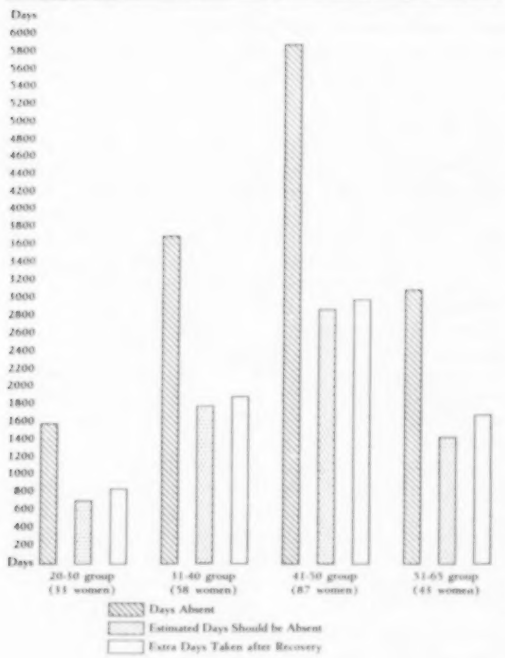

Fig. 2.
Excessive time taken by 221 women—a comparison by age groups.

Among the 507 female absentees, there were at least 221 employees (43.5) who remained away from work excessively. These represent a total of at least 7517 extra days (5369.2 working days) lost. The average loss due to excessive absence for one woman in the group of 221 was 34 days (27.3 working days). The greatest number that took extra time was in the fourth decade; the least number was in the second decade.

It has often been said that employees who take unfair advantage of sick benefits represent a small group. In the conservative evaluation of this analysis, the percentage was high. Among our 713 absentees, there was a total of 253 individuals (35.4%) who apparently misused this sick benefit plan. Comparing the sexes of this group, the percentage of women (43.5%) was almost three times as high as for the men (15.4%). The total of the excessive time loss for both men and women was 8,169 days (5,835 working days). To stress the relative importance of this group, one would be more impressed if the 8,169 days were converted into terms of years. It seems astonishing to consider that the excessive time taken by the 253 employees would amount to 22⅓ years. In other words, these absentees lost the equivalent work that they would produce in 22⅓ years if they had returned to their jobs after recovering from illness. Of this excessive time, the men represented a loss of 1.79 years (652 days) and the women, a loss of about 20.6 years (7,517 days).

The sick benefit allowance paid to our employees begins with the eighth day of illness and it is based on their regular rate of pay. During 1953, a total of $145,489.63 had been paid to our 996 absentees for sick benefits. The average amount paid per employee of the total group was $146.07. The 713 employees reported in this study, which represents 71.5% of the total absenteeism, received $104,025.08. Of this, the 253 employees who were absent excessively after recovery received $35,421.15. The estimated proportion paid to the 32 men was $3,259.90, and that paid to the 221 women was $32,215.50. Among the men, the average extra payment made per person was $101.87; among the women $145.76. Since these employees represented 71.5% of the total absenteeism, one may conclude that about $49,615 (100%) had been excessively paid. In other words, an approximate $49,615 had been paid to those employees who apparently misused the sick benefit plan during 1953. This represents 34% of the total payments made to all the sick employees.

It is well known that more absenteeism is caused by non-occupational disease than by those related to employment. Unfortunately, sickness will always prevail and strike individuals at one time or another. Therefore, employers will continuously be confronted with the problem of absentees. The chief concern, however, is the continued absence of those who stay away longer than necessary. There are times when an employee may not be all at fault. A recent incident may be illustrated by the following example: The writer had occasion to interview an absentee at her home. She had been away from work about 12 weeks, because of a colitis. When seen, she stated that she felt improved, but would return to work three weeks later. During this illness, she is paid regularly by the sick benefit plan. When she was asked the reason for staying out longer, she explained that her physician was in South America and that she was awaiting his permission to return to work after his return. One could accept this as a natural bit of evil without giving any further thought to its significance. If hundreds or thousands of other individuals do likewise, these little evils become matters of great importance.

How such waste of manpower and money could affect industry is readily conceived. The number of employees in this study represents only a fraction of the costly toll on industry. If the number in our group were multiplied by the thousands of similar employees throughout the country, the loss would run into millions or billions of dollars. This is a staggering loss to industry and to the general economy of the nation.

Absenteeism could be amicably controlled if

more serious attention were given to the problem. It is a disease in industry that requires a corrective remedy. The losses in production, the unnecessary expenditure of millions of dollars, the disruption of working schedules, are but a few symptoms of the disease. Merely to acknowledge the situation will serve no good purpose. Instead, active constructive measures should be initiated. Like any other disease, the basic principle of therapy is to check its source—that is prevention. To begin solving the problem, special attention must be directed to the medical profession. A great deal of responsibility lies with the individual doctor. He is the man who treats the patient during the illness and decides when recovery is complete. What is urgently needed, is the cooperation of the individual doctor. Various plans should be attempted to acquaint him with the serious nature of the problem, how his participation in the program could save industry many millions of dollars, and how this money affects the doctor indirectly.

Further Suggestions

1. SINCE management pays the disabled employee, management should have the right to a closer check on the employee's sick absence. Much money unnecessarily spent on sick benefits could be saved.

2. This is not intended to break the confidence with the doctor. If, in his opinion, the employee is disabled, he should not work.

3. Visiting nurses to call on the sick employee —after the first week of absence—to see if the employee is entitled to benefits. In some absences, a doctor recommended by the employer to check on the absentee. Visiting nurses may help the employee's morale—to show the sick individual that the company is interested in his welfare—also to see whether the company can do anything to help his recovery.

4. At times, a doctor desires to have his patient return to work, but the patient appeals to the doctor to stay out longer. By having a closer check, the doctor is relieved of his embarrassment and the patient cannot resent the doctor.

5. The problem should be brought up at negotiation time between unions and management—to ask unions for their cooperation—reducing absenteeism will also reduce money spent by the unions on their sick benefit.

(54 Vernon Parkway.)

Medical Territory

AN EMPLOYEE may be persuaded by management to wear a hood as protection against welder's splatter without any collaboration with medical personnel. But as soon as management asks a man to wear safety glasses (whether they are plano or prescription), or asks him to wear occupational glasses of more conventional types, and further asks him to respond to a program of vision testing and subsequent eye care services, management is into another matter. It is into medical and professional territory and should realize it. It is only logical, then, that an eye program which deals in injury prevention and health values in the visual field should be placed on a medical basis with appropriate professional leadership. This leadership should consist of the medically trained eye specialist, i.e., the ophthalmologist, and preferably the industrial ophthalmologist because the latter is more familiar with the occupational application of his special field of knowledge. The ophthalmologist should help set up a program with its visual requirements, standardize the conditions and procedures of vision testing, interpret the test score results, supervise the referrals for corrective eye care services, referee any after-difficulties concerned with the wearing or acceptance of plano or Rx safeties, and consult with management on job re-assignments that become advisable for visual reasons. He can help management to relate visual factors to various criteria of job performance in respect to improving pre-employment standards, keeping visual requirements adjusted to the aims in safety or job efficiency, and developing the maximum advantages of the program. The industrial ophthalmologist is the only professional man who is fitted and qualified, by reason of his training, to handle supervision of the professional aspects of an eye program and coordinate them with the non-medical phases, as well as render these other somewhat scientific forms of assistance to management.

—From "Medical Aspects in Management Development," by H. WELDON WILKINSON, M.D., Management Report No. 196, Research Division, California Personnel Management Association, Berkeley.

Liver Damage at an Ordnance Plant

—INCIDENCE AND PREVENTION

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IN THE proceedings of the Royal Society of Medicine, in April, 1942, it was reported by Dr. J. C. Bridge that between 1916 and 1941 in England there were 475 cases of toxic jaundice due to exposure to chemical agents in the manufacture and loading of ammunition. Of these, 125, or 26.3%, ended fatally, the male death rate being 21.9%, and the female death rate 28.4%.[1]

All literature concerning trinitrotoluene emphasizes the ever-present toxic dangers, capable of producing severe liver impairment and/or aplastic anemia, and in numerous cases, fatalities. During World War I, over a period of 20 months, one plant in the United States reported 7,000 cases of T.N.T., poisoning with 105 fatalities (1.5%). Another plant in a period of seven and a half months reported 17,000 cases with a death rate of 2.79%, or 475 workers.[2]

McConnell and Flinn[3] report for the United States Ordnance Department that, in the period of three and a half years, during World War II, 22 fatalities occurred (a rate of three fatalities per 100,000 operating employees). In this series of 22 fatal cases, these writers report that eight died of toxic hepatitis, 13 of aplastic anemia, and one, who recovered partially from hepatitis, died of aplastic anemia or a combination of anemia and hepatitis.

The number of toxic jaundice and aplastic cases that did not terminate fatally is not known, but very few of the cases of aplastic anemia recovered from such poisoning. Hepatitis was observed to occur more frequently among the younger age group, the average being 30 years; and aplastic anemia more frequently among the older age group, the average age being 45 years.

THE primary effort at our plant which loads shells with trinitrotoluene has been to eliminate not only all the fatalities, but to eliminate all of the seriously damaged liver cases. It has been found, and perhaps accurately, according to Bridge, that the exposure to trinitrotoluene before the onset of symptoms varied in females from three weeks to six months and among the males from three weeks to 10 months. We at the Lone Star Ordnance Plant confirm this statement as essentially correct.

In our search for a test that would give us as accurate information as possible regarding the possibility of liver impairment, it was necessary to find one that was also adaptable to mass examination, such as done here at Lone Star Ordnance Plant. The thymol turbidity test, as developed by MacLagen, with modifications was selected for this purpose. While, in the strictest sense, this is not a liver function test, it furnishes evidence of liver cell irritation (probably depending on the alterations in the plasma proteins that occur as a result of perenchymal liver disease, especially an increase in the gamma globulin fraction). Hence, positive results are to be expected in cirrhosis and hepatitis, with negative results in jaundice due to the extra hepatic obstruction. This test has proved most satisfactory.

In addition to pre-employment examination, examinations for liver impairment have been made on all workers in designated toxic areas at intervals from four to six weeks, along with our routine re-check examinations for all other ailments. In all, our Laboratory has run 4,641 thymol turbidity tests. At the same time these tests were run clinical examinations including a history for symptoms were made and from these examinations, including thymol turbidity tests, we have been able to acquire considerable interpretative information. Our mean average on pre-employment personnel has been 0.93 MacLagen units. The mean average for employees in toxic areas has been 1.80. We consider 2.9 as a normal MacLagen unit factor and in 1,537 thymol turbidity tests run on these workers, i.e., workers in toxic areas, 1,345 were found to be within this range, and that represented 87.5% of the group. The range of 2.9 to 4.9 MacLagen units are referred to as "green-light" workers, meaning that although their thymol turbidity test reading is above the normal reading accepted as we have arbitrarily adopted as normal, we have been unable to determine any ill effect among this group. All reported they felt fit. Our examination revealed no pathology, and they were permitted to continue work at their regular jobs. During this period, 152 workers were found to have readings in this range, a percentage of 9.89.

In the reading of 5 or more units, we found 40 workers or 2.66%. Eighteen of these were in the range of 5 to 5.5 units; 12 were 5.5 and 6; two at 7; four between 7.5 and 9; with three between 10.1 and 10.7; and one with a reading of 11.2 units. Thirty-six of these 40 workers presented classical symptoms of liver damage.

Presented at a Meeting of the Association of Ordnance Industry Physicians, Joliet, Illinois, March 22, 1954.

These workers were classified as "red-light" workers and were immediately moved to jobs in inert areas, placed on a high protein, high caloric diet, and advised to rest. They were called into the hospital for examination, treatment, and advice. Subsequently, following weekly examinations, their readings have all returned to normal within a period of three weeks or less, and they have without exception returned to their old jobs in toxic areas. In no instance have any of the subsequent examinations revealed thymol turbidity readings above the normal limits.

Conclusion

IN CONCLUSION, it seems that the thymol turbidity test is of a distinct value in preventing serious liver impairment, since we have not seen a single case of this in any of the workers. It is our belief that of the 40 cases where the thymol turbidity test readings were above 5, and particularly in the 36 cases where thymol turbidity test readings were above 5, together with definite symptoms, there would be some in this group who would have suffered either an irreparable liver damage or fatality. We further believe that this procedure or technique provides a relatively simple, inexpensive, and practical method of preventing either death or chronic illnesses of the liver —in our industry. Furthermore, these preliminary studies appear to indicate, in cases where there is a rise in the MacLagen units of workers in toxic areas, that immediate removal from the toxic area and proper diet will not only prevent permanent liver damage, but also will permit the worker to continue his work without "lost time," and that, with the proper treatment and advice, this worker within a short time is able safely to return to his work in toxic areas without subsequent involvement, suggesting that a tolerance may occur. We intend to pursue this point further in subsequent studies.

(Medical Arts Building, Texarkana, Arkansas.)

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A Foreign Policy In Which We Could Believe

AS YOU go back to the memoires that you are reading, those of Churchill or the men before him, and to those that are coming out from Truman and the men after him, read again of Yalta, Teheran, Berlin, and China and Korea, read again of the First World War, and try to think how different it would have been if we had stood clearly and resolutely for the freedom of all men everywhere. We would have stopped the First World War in the first month. We would have prevented the Second World War by bringing the force of the world against the oppressions and brutalities of the Nazis in Germany. We would have maintained the freedom of China. We would have prevented the invasion of Korea or, failing that, we would have blasted the conquerors out by using the normal and only effective strategy of war. If we had stood for the freedom of men we would never have equipped and financed the tyrannical rulers of Russia. We would have had no truck with their despotism. If we had stood for the freedom of men we would not have tolerated Russia in the United Nations until her own people were free. We would not even talk about admitting China during this time of her bloody enslavement of her own people. We would stand for human freedom in Russia, in Czecho-Slovakia, in Poland, in Palestine, in Iran, in Korea. We would have a foreign policy that we could understand, in which we could believe, and which would be worth the great sacrifices of human life which we have been offering up on the altar of the world.

—From "Human Freedom and Foreign Policy," by DR. RALPH COOPER HUTCHISON, at the Forty-Seventh Annual Meeting, Life Insurance Association of America, New York, December 8-9, 1953.

The United Nations Health Services

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AT THE TIME of its organization in 1949, the United Nations Health Service was staffed by a few nurses on a full-time basis and one physician in attendance a few hours weekly. Its clinic had inadequate physical facilities, and the medical staff limited its activities to minor emergencies—mainly first-aid treatment and inoculations. With the growth of the United Nations organization and the employment of personnel from other countries and their families, it became evident that there was an urgent need for a broader service if the primary health needs of the employees were to be met. The expansion of the original health unit soon became a necessity.

Upon the appointment of a full-time Medical Director, it became possible to proceed with the planning of an enlarged health service in the permanent headquarters of the United Nations in New York City. In consultation with leaders in the field of industrial medicine and engineering, the Director blueprinted the physical layout and a basic health program was evolved.

The implementation of the program was greatly facilitated by the Director's previous experience as Deputy Commissioner of the New York City Department of Health. In 1943, in that capacity, he had initiated an experimental industrial project designed to create health services for small plants in the Long Island City Area. This plan had the participation of the New York City Department of Health, the New York State Department of Labor, the United States Public Health Service and the Queens Medical Society.[1]

Basic Principles

LIKE ANY project in the field of health maintenance, the planning of the United Nations Health Service was guided by certain fundamental principles including the following:

1. Physical examinations: preplacement, periodic and special examinations and, on discovery of actual or incipient illness, referral to the patient's own physician.
2. Emergency treatment of all illnesses and accidents.
3. Psychological counseling services.
4. Immunization and vaccination, with special reference to service or travel outside of the United States.
5. Health education at all levels.
6. Attention to intramural environmental health problems.
7. Consultation with administration on medical insurance plans, pension plans and related problems.
8. Research in the areas of nutrition, absenteeism and accident prevention.
9. Adequate recording and analysis of the health experience of staff members.
10. Coordination of the total health program with community health goals.

A primary objective was the education of all United Nations personnel as to the long-range aims and advantages of a preventive health program. To accomplish this, a diagnostic service was developed which, on the basis of voluntary periodic or self-referred health examinations, would lead to the discovery of conditions requiring attention.

Such a program, designed to meet the individual health needs of staff members, also had to be geared to the administrative requirements of the organization. It involved the setting up of a system for preplacement examinations and a counseling service on occupational disease. It meant the assumption of responsibility inherent in the establishment of all international working groupings—the proper selection of intramural

and extramural personnel for assignment to areas which might be hazardous as a result of climate, endemic disease or poor living conditions, or perhaps intrinsically non-hazardous, but potentially threatening as a result of the vast change from the employee's previous or home environment.

There were other factors which were taken into consideration. Because communication is an important element in human relations, it was thought advisable to seek bilingual lay and professional personnel, with a thorough knowledge of English and a working knowledge of French or Spanish. The medical records were to be considered inviolate and the doctor-patient relationship maintained with great diligence.

Health Services Rendered

THE PROGRAM was designed to cope with any problems which might arise in the medical and psychological spheres. This was accomplished through periodic health check-ups which are entirely voluntary and by making medical facilities freely available to any staff member who wishes to confer with any of the consultant physicians. Thus employees could be covered either by periodic visits or consultation requests.

Consultations and examinations might also occur at the request of health service personnel in two ways:

1. Sick leave certificate. The organization requires that sick leave over three days be certified by the patient's physician and accompanied by a diagnosis. This enables the Service to tie in with the private physician's recommendations and provides it with a more complete picture of the physiological and biological character of the individuals involved—information which may be of vital importance in the future assignment of personnel to special jobs.

2. The other source of referral is through supervisors who are sufficiently alert to report staff members who do not seem physically or emotionally fit.

The periodic examination is offered on a voluntary basis as follows:

To individuals over 45 years of age—every year.

To individuals between the ages of 30 and 45—every two years.

To individuals under 30 years of age—every three years.

For the younger group, the three-year schedule was adopted because of the comparatively large turnover as contrasted with the older groups.

The yearly physical examination includes a rectal and pelvic examination. In addition, a routine chest x-ray, serology test, hemoglobin determination and urinalysis are performed. Wherever indicated, blood chemistries, electrocardiograms, basal metabolism rates and other special tests are available. Under a tuberculosis case finding program, all staff members are x-rayed at least every two years. During pregnancy, patients are x-rayed as soon as possible and again four to six months following confinement. All personnel going home on leave or on special assignments receive appropriate immunizations, based on the information contained in the monthly Epidemiological Bulletin of the World Health Organization.

Physical Plant

THE United Nations Health Service has incorporated the basic physical requirements of any industrial health unit—namely, adequate, compact, well-equipped rooms, accessibility to the staff, and facilities which afford excellent light, controlled temperature, ventilation, and freedom from noise. The spatial requirements were set up for 6,000 people, since it was expected that a few specialized agencies of the United Nations would be located near United Nations Headquarters. The need for space for such a population group is calculated at one square foot per person, although it is obvious that, as the population group goes down, the need for space per person goes up, as indicated in Table I, which gives the square foot requirement, per room, for a population of 1,000. This table was devised by the Medical Director in consultation with experts in the field.

TABLE I.
SPACE REQUIREMENTS FOR A HEALTH SERVICE
(per 1,000 people)

Type of Room	Footage
1. Reception room—for approximately five persons	150 sq. ft.
2. Office staff—for two people, including office equipment	200 sq. ft.
3. First aid room—to treat 18 cases per day	125 sq. ft.
4. Medical Director and examination room	175 sq. ft.
5. Doctor's office—also used for BMR and EKG	125 sq. ft.
6. Nurse's room	130 sq. ft.
7. Laboratory room	100 sq. ft.
8. X-Ray Room	200 sq. ft.
Space for developing	60 sq. ft.
9. Utility room	100 sq. ft.
10. Storage room	50 sq. ft.
11. One men's rest room—with two beds	110 sq. ft.
12. One women's rest room—with two beds	110 sq. ft.
13. One men's toilet room	75 sq. ft.
14. One women's toilet room	75 sq. ft.
10% of the total required for corridors and miscellaneous	180 sq. ft.
	1,965 sq. ft.

Staff

THE STAFF requirements had to be carefully assayed in relation to budget allotments. To justify budgetary requirements, the figure was computed on the Long Island City experience which indicated that the total number of visits to be expected per month would be one-half of the population group. Thus 1750 visits were to be expected per month or approximately 80-90 visits per working day. This figure would include preplacement examinations, medical, pension or compensation consultations, first-aid treatment, mission examinations and immunizations.

In the pilot experiment of 1945, one and a half hours of doctor service per staff member had served as a starting point, which would indicate a need for 5,250 hours of doctor service and 15,750 hours of nursing service per year. The question to be determined was whether this estimate was sufficient or too excessive.

These estimates did not take into consideration

the fact that there was administrative time included in the examining physician's hours as well as that of the nurses who assumed the functions of administrative and liaison officers of the medical unit. Consequently, it was decided that if administrative time was eliminated, the number of doctor hours per year would be measured in terms of one hour per staff member, that the number of nursing hours should be twice the number of doctor hours, and that the time of laboratory and x-ray technicians would be one hour per doctor hour.

It should be understood that provision is made for vacation and/or sick leave and that the service is covered at all times during working hours.

The clerical staff consists of: one administrative officer, two secretaries, one receptionist, one clerk.

This is based on a daily active load of 90-100 visits to the service and a ratio of one clerical staff member to 20 visitors daily.

Medical supplies, including x-ray films, cost

approximately $2.00 per capita yearly. The total costs can thus be calculated on the basis of salaries paid and other costs (but excluding rent and maintenance) to approximate $30 per capita per year.

The 1953 experience is shown here to demonstrate the validity of the above-listed assumptions:

Table II serves to indicate the theoretical vs. the actual medical load of the service, as experienced in 1953. It shows the number of periodic examinations expected for an age group of 18 and over; however, there has to be included in this group the number of preplacement examinations carried out in 1953, i.e., 528.

TABLE II.
TOTAL VISITS TO THE HEALTH SERVICE
1953

Age	Theoretical Load: Total Population	Theoretical Load: Expected Periodics	Actual Load
18-29	599	200	
30-44	2030	1015	
45-over	870	870	
Total	3499	2085	1953
			(Refused 64
			(Not within area: 68
Other Visits		18903	20536 (see table III)
Total Visits		20988*	22489

*Theoretical visits Long Island Experience:
$\frac{3499}{2}$ x 12 mos. = 20,988 visits.

TABLE III.
ANALYSIS OF OTHER VISITS

Visits initiated by the Health Service		
Periodic examinations	2850*	
Preplacement examinations	528	
Foreign assignment	476	
Consultations	1250	
Check-up after illness	3082	
X-ray follow-up for tuberculosis	1319	
Inoculations	1587	
Total	11,092	
less	1,953	(included in previous table)
TOTAL	9,139	
Visits initiated by the Staff		
Consultations	1,175	
First aid with nurse and M.D.	(2,090**	
First aid with nurse only	(8,132	
Grand Total	20,536	

*Two visits per periodic examination.
**Compensation injuries 93
Other minor injuries 1198
Minor medical care 8931

TABLE IV.
LABORATORY WORK
1953

X-rays taken	3,394
E.K.G.	92
B.M.R.	36
Urinalysis	2,608
Blood counts	213
Hemoglobin	2,459
Serological tests	2,452
Other tests	210
TOTAL	11,464

TABLE V.
TIME ANALYSIS FOR MEDICAL STAFF

Periodic examinations and preplacements: 1953, at 50 minutes each*	1,628 hours
Mission examinations: 238, at 50 minutes each*	198 hours
Self-referred consultations: 1175, at 30 minutes each	588 hours
Requested consultations from health service: 1250, at 30 minutes each	625 hours
First-aid medical counseling: 2090, at 5 minutes each	175 hours
Readings of E.K.G., x-rays, G.I. series, etc.	267 hours
Total No. of hours	3,481 hours
Theoretical No. of hours, as per assumption	3,499 hours

*Allows for 10% missed appointments.

TABLE VI.
UTILIZATION OF PERIODIC EXAMINATIONS
BY UNITED NATIONS STAFF MEMBERS

	(a) Examinations Offered	(b) Examinations Refused	(c) Examinations Accepted	(d) c — % a
Assistant Secretary-General	8	0	8	100
Principal Director	10	0	10	100
Director (grade 2)	20	1	19	95
Director (grade 1)	36	0	36	100
Professional (grade 5)	95	3	92	96
" (grade 4)	176	7	169	96
" (grade 3)	192	13	179	93
" (grade 2)	109	4	105	96
" (grade 1)	40	3	37	95
Clerical (grade 5)	46	3	43	93
" (grade 4)	125	9	116	93
" (grade 3)	255	16	237	94
" (grade 2)	117	3	114	98
Maintenance and unclassified	262	2	260	98
Total	1,489	64	1,425	96%

The Medical Staff

IN 1953, the medical staff of the United Nations Health Service had consisted of the following:

1. The Medical Director acts as the chief administrator of the unit. He serves as Consultant to the Joint Staff Pension Board (which includes the specialized agencies of the United Nations) and to the Advisory Board on Compensation Claims. He is responsible for the development of medical insurance plans to cover the staff globally as well as in U.N. Headquarters. He must be available for counseling on personnel policies affecting health. He receives medical examination reports from all parts of the world in reference to technical assistance experts, mission assignments, etc. He passes on fitness for work in hazardous areas and weighs the risks of employment in these areas against the applicant's complete health picture.

The Medical Director has had about 500 consultations per year, approximately 250 hours. The remainder of his time has been increasingly applied to administrative duties, not only in the operation of the unit but also involving the standardization of medical examinations for staff members throughout the world.

2. Consultants in the fields of gastro-enterology, cardiology, chest, gynecology, metabolic diseases, and surgery. Total number of hours: 3,208.

It is evident from the above data that the administrative and executive time involved in running this service amounts to 27% of the total doctor hours, since that number of hours is 4,888, which leaves for administrative time 1,430 hours.

As new problems arose in the field of personnel relations and psychosomatic medicine, it became necessary to add a full-time assistant to the staff. The program was fortunate in obtaining the services of a doctor from the United Kingdom with extensive training in industrial medi-

cine and orientation in the psychiatric field. This physician now serves as Chief Medical Officer.

The total number of hours available for medical staff is now as follows: Medical Director, 1,680 hours; Chief Medical Officer, 1,680 hours; Consultants, 2,860 hours; Total, 6,220 hours.

Of the total number of hours listed above, 3458 hours are for direct medical service, 1098 hours for psychosomatic and mental health problems, and 1680 hours for administrative time.

Achievements

THE U.N. Health Service has achieved the following objectives:

1. In a population of approximately 3500 people, 96% are voluntarily utilizing the medical facilities (Table VI).

2. All levels of personnel are availing themselves of the medical service as measured by the response to the offer of periodic voluntary examinations (Table VI).

3. As a result of screening preplacement examinations, the organization has been able to establish criteria for employment and pension classifications.

4. A unified set of medical standards has been evolved to cover U.N. posts outside the continental limits of the U.S.

5. There has been universal acceptance on the part of the U.N. staff and their families of two types of insurance plans.

6. Tuberculosis and psychiatric referral services not covered by insurance plans have been established.

7. There is an excellent relationship with the outside medical profession (the private practicing physicians) to whom the employee is referred for definite therapeutic care.

In terms of its stated objectives, the program of the United Nations Health Service has come as close to achieving its purpose as was deemed possible.

Further progress should result from a continuing campaign of education which will invite an even wider use of the Service's facilities for diagnosis, referral and health education, spur the expansion of the scope of staff activities as it keeps abreast of the latest advances in research, and assure the cooperation of the United Nations personnel in achieving a program which, in its primary goals and achievements, will keep pace with expanding concepts in the medical field of constructive health maintenance.

Reference

1. "Small Plants Health Demonstration Program in Astoria-Long Island City Area, Queens County, New York." Public Health Service Publication, No. 215. Federal Security Agency, Division of Occupational Health, Washington, D.C., May, 1952, pp. 88-96.

The Myth of the Common Man

AMONG the delusions offered us by fuzzy minded people is that imaginary creature, the common man. It is dinned into us that this is the century of the common man. The whole idea is another cousin of the soviet proletariat. The uncommon man is to be whittled down to size. It is the negation of individual dignity and a slogan of mediocrity and uniformity. The common man dogma may be of use as a vote getting apparatus. It supposedly, proves the humility of demagogs. The greatest strides of human progress have come from uncommon men and women. You have perhaps heard of George Washington, Abraham Lincoln, or Thomas Edison. They were humble in origin, but that was not their greatness. The humor of it is that when we get sick, we want an uncommon doctor. When we go to war, we yearn for an uncommon general or admiral. When we choose the president of a university, we want an uncommon educator. The imperative need of this nation at all times is the leadership of the uncommon men or women. We need men and women who cannot be intimidated, who are not concerned with applause meters, nor those who sell tomorrow for cheers today. . . . A nation is strong or weak, it thrives or perishes upon what it believes to be true. If our youth is rightly instructed in the faith of our fathers; in the traditions of our country; in the dignity of each individual man, then our power will be stronger than any weapon of destruction that man can devise.

—HERBERT HOOVER, at West Branch, Iowa, on the occasion of his 80th birthday celebration, August 10, 1954.

Medical Needs and Absenteeism in a Healthy Population

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TWO IMPORTANT questions in the area of general health are: (1) What is the extent of the medical requirements of a group of individuals highly screened on health requirements over a given period of time? (2) To what extent do these requirements result in absenteeism, i.e., interfere with job performance?

The answer to the first question is necessary in systematically planning to meet the requirements in a given population. Only by such information can over-staffing or under-staffing of medical facilities be prevented. The answer to the second question is useful in determining the administrative implications of these requirements in regard to program planning. Certainly in the efficient development of a structure of medical facilities for a particular industrial group, this information is essential.

These questions are difficult, if not impossible to answer, from the activities of the typical medical facility. For example, the extent of the use of medical facilities is markedly affected by their availability in terms of their number, their geographical location and the economic consideration inherent in their use. Further, if more than one medical facility is available in the general area, it is difficult to know the nature and the extent of the population being treated by the individual facility. In most instances, we do not know the level of the health of the population being treated. In regard to the effects of the medical complaints on the work performance of the individuals being treated, records are seldom kept. Although such records are frequently maintained in an industrial medicine facility other required data are often unavailable.

Recently, data on 1,080 Naval Aviation Cadets extending over an eight-month period have become available. These data give the number of times each individual visited a medical dispensary which was available to care for their needs and also the resulting administrative action that was taken by the dispensary in regard to his continuing his routine activities. Such a population has the characteristics of complete and unrestricted availability of its facilities with a defined health level for the group. The purpose of this paper is to report the findings.

This report was developed as a part of Office of Naval Research contract NR 154-098. Opinions or conclusions contained in this report are those of the author. They are not to be construed as necessarily reflecting the view or the endorsement of the Navy Department.

Results

TABLE I gives the number of individuals who made varying numbers of dispensary visits during the eight-month period. Further, the dis-

TABLE I.
NUMBER OF DISPENSARY VISITS AND DISPOSITION OF 1080 CADETS DURING AN EIGHT-MONTH PERIOD

No. times going to sick call	No. of cadets	Returned to duty	Light Duty							Off-Duty			Hospitalized
			24 hrs.	2 days	3 days	4 days	5 days	7 days	30 days	1 day	2 days	3 days	
1	152	122	8	3	1					6	5	1	4
2	111	168	9	4						8	3	2	5
3	102	206	18	13	3					10	9	2	6
4	74	199	15	4	2	1				9	2		2
5	38	134	12	2	1					6	1	1	4
6	34	132	11	2	1		1	1		2		1	3
7	37	176	5	3	2					2	3	3	3
8	20	110	6	3	2					4	4	3	1
9	11	75	7	1						3	1		2
10	13	81	3	3	2					2			1
11	5	37		2									
12	8	61	2							3		3	1
13	3	30	2							1			
14	3	30	3							1	1		
15	3	28	10	3	1			1		4			
17	2	13	4						1				1
18	1	15	2	3	1								
19	3	21	2										
27	1	12											
32	1	24											
36	1	28	2										
43	1	20	1							1			
Totals	2542	1722	122	92	48	4	5	14	30	62	58	48	33

position of each case is cited as to whether (1) the patient was given "light-duty," (2) "off-duty," (3) was sent to the hospital for further treatment, or (4) was returned to his routine activities.

Conclusions

ANSWERS to our original questions, at least for this particular population, may be obtained from Table I.

1. *What is the extent of the medical requirements of a group of healthy individuals over a given period of time?*

(a) Of 1,080 males with intensive physical screening, 624 (59%) had a medical complaint as evidenced by a dispensary visit one or more times during an eight-month period.

(b) The total group made 2,542 dispensary visits for an average of about two and a half visits per man.

(c) The range of the number of medical complaints per individual as indicated by a single dispensary visit was from 0 to 43; approximately 5% of the individuals made 10 or more visits; 10% made five or more visits.

(d) On an average, about 10 men per day entered the medical dispensary during the eight-month period.

2. *To what extent did the medical requirements of this healthy group result in absenteeism or interfered with their job performance?*

(a) Sixty-seven percent of the dispensary visits resulted in return to duty.

(b) Of the remaining 33% of the visits, 188 off-duty assignments were given for a total of 266 days; 235 light-duty assignments were given for a total of 315 days; 33 visits resulted in assignment to the general hospital for further treatment.

(c) Of the 259,200 man days constituting the eight-month period, off-duty and light-duty assignments were responsible for slightly more than one-tenth of one percent, respectively.

In discussing these data, it is reasonable to assume that the figures reflect the minimal extent of health requirements in our culture. This would follow from the fact that our population consisted of young males, 18 to 27 years of age, who had been intensely screened by a detailed physical examination. Further, the subjects during the interval of time studied led a relatively controlled pattern of life, and received continuous physical training and good food.

With these facts, it is somewhat surprising that approximately six out of 10 of our subjects found a need to appear at the medical dispensary at least once during a period of eight months. It is also surprising that a clinic dealing with a population of 1,000 such subjects will report an average of some 10 visits per day.

Fortunately, although the extent of the use of the medical facilities seems surprisingly high, the nature of the medical complaints was apparently not critical. This is evidenced by the fact that only 33 of 1,080 cadets required general hospital referral during this period and only approximately one-tenth of one percent of the man days during this time were lost to off-duty status as a result of these complaints.

Summary

THIS STUDY presents information in answer to two fundamental questions related to medical care: (1) What is the extent of the medical requirements in a healthy population? (2) To what extent do these requirements result in absence from the job?

The dispensary visits of 1,080 cadets for eight months were studied. It was found that the extent of dispensary visits was considerable: about six men in 10 made at least one dispensary visit during the period; the number of sick calls ranged from 0 to 43; 5% of the group made 10 or more visits, and 10% of the group made five or more visits during the period of time studied. Fortunately, the medical requirements did not result in extensive interference with job performance: 67% of the visits resulted in immediate return to duty; only 33 visits required hospitalization; only one-tenth of one percent of the man days available during the period were lost to off-duty assignments.

One Individual

THE TOTAL adjustment of an individual to his health and environment should be of equal interest and importance to men in both industrial and private practice. An employee who leaves work and reports to the doctor's office in his overalls is called an industrial case. The same individual, dressed in street clothes, reports to a private physician and is considered a private patient. There has been, through industrial and economic development, an imaginary division of responsibility for this individual's health and welfare. If he suffers injury or disease resulting from occupation, he is called "an industrial case." If he suffers disease or disability having no relationship to his employment, he is called "a private case." In truth, however, he is one individual. His attitude toward his disability shows no clear-cut division regardless of responsibility for his medical care. By the same token, his attitude toward the medical profession recognizes no lines of demarcation as to industrial or private practice. If he gets caught in a "bind," due to misunderstanding between the two, both branches of medicine suffer loss of prestige, of acceptance, and of effectiveness.

—From "Benefits of an Industrial Medical Program," by E. P. LUONGO, M.D., in *GP*, June, 1954.

Neurologic Examination in Industrial Injuries

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BECAUSE of the frequency with which estimation of neurologic status is required in persons injured on the job, an orderly method of appraising the extent of this type of trauma is mandatory. In the absence of an accurate and adequate initial record, not only is proper medical conduct of a case hindered, but court action on the financial award may be impaired seriously.

The frequency with which post-traumatic head syndrome, hysteria, and compensation neurosis occur constitutes a major economic loss. Since World War I, the U.S. Veterans Administration has spent more than four billion dollars on claimants who have neuropsychiatric troubles originating during their military services in that war; about 60% have been hospitalized for neuropsychiatric conditions, and 40% of these are receiving pensions because of them. In World War II more than 25% of the causes of invalidism in soldiers were disease of or injury to the nervous system.[1-9]

Even under the stress of demands upon the plant physician's time, no patient with a possible organic neurologic lesion must be dismissed without proper study, and immediate neurosurgical consultation should be sought, if indicated. Because of the extensive overlap between psychopathy and organic disease[10] a complete detailed history of the accident must be taken.

A fundamental problem in psychoneurotics is to avoid aggravating the psychic trauma by disregarding complaints or dealing harshly with them. If neurotic reactions are allowed to persist, they become more difficult to manage, and unless a neurasthenic is treated speedily and efficiently, chronic invalidism may result. Since psychoneuroses are not continuative or inexorably progressive maladies, their early discovery is important.

In every examination made by the plant physician or consultant, especially in a case of neurologic injury, care should be taken to put the patient at ease; otherwise, his constant wariness, apprehension, dishonesty, or antagonism will nullify the examination. The worker may feel that he must accept a doctor not of his own choosing, who gets paid whether he is interested or not.

Psychosomatic Aspects of Injury

IT IS NOT surprising that 10% of the general population are constitutional inferiors and that 30% to 60% of patients seen in general medical practice have primary neurotic complaints simulating organic diseases; in fact, most Selective Service rejections are made for neuropsychiatric disorders.[11,12]

A neurosis is maladjustive in origin, and consists of a perverse reaction under environmental stress, precipitated by an injury.[13] To uncover the substituted disability requires painstaking appraisal of the patient, and may tax the examiner's acumen.

In an *acute neurosis* after an industrial injury (traumatic neurasthenia), like those seen in war injuries, the anxiety emotion is greater and more distressing than warranted by the circumstances and may be a physioneurosis consisting of a mixed anxiety state and hysteria. In fact, the neurotic reaction may vary from a mild somatic complaint to actual conversion symptoms such as paralysis.[14-17]

Most acutely injured persons who are dubbed "neurotic" are not neurotic at all; a man with a strong constitutional background may be expected to have no functional overlay, while the psychasthenic, constitutional inferior will have continuous complaints as a "neurotic." More than 80% to 90% of the cases of neurosis after severe injuries have constitutional or acquired predisposition to neurotic behavior with symptoms prior to injury. The greater the predisposition in a neurasthenic individual, the less is the psychodynamic aggravation necessary to produce a neurosis.[18-20]

Hysteria, even the amaurotic type, is a psychogenic conversion reaction in which a psychologic frustration is converted into a overt *pseudoneurologic* symptom with amnesia for the mechanism and has a tendency to affect the maladaptive, somatopsychic individual. In this state, a mental conflict is converted into a state of physical distress or dysfunction. Thus, hysteria is a pathologic exaggeration of a normal protective mechanism. Through this somatic reaction, an otherwise well-adjusted individual may "stall for time" when confronted with a sudden reversal or a difficult decision. Tendency to hysterical behavior probably is found in all people to some extent, but the stress of a severe injury can bring it out in most men. Unlike the malingerer, who wills ill health and undertakes conscious deception, the hysteric lacks the will for health, and while the neurasthenic is benefited by painstaking and frequent studies, the hysteric is made worse by such procedures.[21-26]

Post-traumatic Head Syndrome (Post-concussion)

ACCORDING to the National Safety Council, 41% of the fatal accidents in the United States are due to motor vehicles, and 50% of the latter are cranio-cerebral injuries. In the Korean war,

50% of the United Nations casualties were head injuries, and 90% of these were due to bomb explosions. The extensive brain damage which may be present under a trivial external wound, because of blast effect, accounts for the 12% mortality in these cases.[27]

The post-traumatic head (post-concussion) syndrome is a combined psychosomatic disorder which follows head injuries. In this group are those deteriorative individuals who have been subjected to severe cranial trauma, with concussion and unconsciousness, with or without skull fracture. The syndrome is an organic disorder characterized by traumatic amnesia, of which part is retrograde and part post-traumatic. This syndrome does not include cases with demonstrable organic components such as subdural hematoma or brain atrophy. Although the retrograde amnesia may be hours or days in severe injuries, hysteria must be suspected if the retrograde amnesia is too extensive. Permanent mental defects, such as those of memory, frequently result. The intensity of the post-concussion syndrome (headache, giddiness, and emotional instability) does not parallel the severity of the injury. The constant headache in these cases, present day or night, is intensified by work, strain, or excitement. The emotional instability consists of insomnia, anxiety, "nervousness," and undue fatigue after mental or physical work.[28-32]

Some of these cases present a type of Parkinsonism due to injury to the basal ganglia. Although the syndrome is not defined clearly as to the underlying pathology, it may progress to Jacksonian convulsions—the so-called "traumatic epilepsy"[33] or to other positive ipsilateral or contralateral neurologic manifestations.[34,35] The fact that the patient knows there is a head injury initiates a vicious circle of hysterical superstructure on the organic injury. If compensation is involved, 30% of patients with post-concussion syndromes are unable to work after 18 months; if compensation is not a factor, only 9% are so disabled.[36]

Chronic Subdural Hematoma

THESE may be expected to occur in about 10% of all hospitalized craniocerebral injuries. In fact, the head injury may have been trivial and may not have been accompanied by unconsciousness or skull fracture.[37-41] The symptoms may develop days to months after the injury. The presence of headache, of which the patient may complain for years, frequently accompanied by mental symptoms suggestive of brain tumor, such as dullness, should alert one to the diagnosis.[42,29,43,44] The cerebrospinal fluid pressure may be high, normal, or low, even in the presence of a large clot, and it may be crystal-clear in a chronic subdural hematoma of long standing. It should be remembered that a post-concussion neurosis may resemble closely a chronic subdural hematoma.

Closely allied to these subdural accumulations are the intracerebral hemorrhages, a pathological and clinical entity known as *delayed apoplexy*, which may give the first symptoms two weeks after the injury.[45-48]

Post-traumatic Epilepsy

CORTICAL injury, leading to cicatricial gliosis, contraction, and atrophy or to a meningeal ingrowth into the cerebral wound, results in an epileptogenic scar; a vasomotor reflex initiated by traction eventuates in a convulsive seizure which may not occur until two years after the trauma. Epilepsy develops in 10% of non-penetrating head wounds; the incidence is 45% if the dura has been penetrated.[30,49,50,51,52] Although there have been numerous surgical methods aimed at relief from this discouraging sequel, none has been successful. However, if the attacks are due to a subdural hematoma,[53] these frightful symptoms may be relieved by operation. The distinction between epilepsy and hysteria may be a difficult one.[54] One in 200 people in the United States has convulsions of some sort, but 10% of all people show cerebral dysrhythmias of an epileptic pattern. These people are "potential" epileptics in whom less severe head injuries may precipitate seizures.[55-58]

Protruded Intervertebral Disc

SUMMARIZING the overabundant, redundant writings on this lesion, rupture of the annulus fibrosus with herniation of the nucleus pulposus occurs more than twice as frequently in men as in women, and at least half of the patients give a history of back strain, which may have been slight. Protruded discs are multiple in 12% of the cases, involve the L_3, L_4, or L_5 interspace in 96%, and the L_4 or L_5 interspace in 84%, but may be found in any interspace.

Intermittency of symptoms is present in 81% of the cases. Since the posterior longitudinal ligament is strongest in the midline and weakest laterally, most protrusions are lateral; therefore, one may find unilateral sciatic pain (78%), positive Lasègue's or Kernig's sign on the involved side (84%), diminished or absent Achilles reflexes (60%), and sciatic pain on coughing, sneezing or straining (64%). The patient lists away from the side of the lesion and forward, and, because of the lumbar spasm, the normal lordotic lumbar curve is flattened, or kyphosis may be present.[59] Paresthesias of the dermatome of the involved nerve (50%), night pain (25%), muscle weakness on the involved side with some sensory loss (20%-25%), and sphincteric incontinence (5%) occur with protruded discs. The spinal fluid protein level is over 40 mg. per 100 cc. in 66% of the cases.

Although McKenzie and Botterell[60] felt that the neurologic symptoms produced by a disc are sufficiently diagnostic to make myelograms unnecessary, usually, by neurologic study alone, which may be entirely negative, a protruded disc cannot be localized accurately. Owing to the conformation of the caudal sac or for other reasons, contrast myelography may be negative in as many as 35% of protruded discs proved at operation, the so-called "concealed discs."[61] Al-

though myelography shows narrowed interspaces present in 76% of proved cases, Love and his colleagues[62] placed no significance on this point. The osseous changes produced by a protruded disc, as in any extramedullary or intramedullary spinal cord tumor, may be discerned frequently by a good roentgenologist without contrast myelography.[63-65]

Before spinograms are made, a careful history must be taken and a detailed neurologic examination is made to rule out, if possible, extramedullary or intramedullary spinal cord tumors, the differential diagnosis sometimes being impossible.[66-68] These neoplasms are unrelated to trauma.

Technique of Examination

IN ANY neurological examination, a knowledge of the neuro-anatomy involved and the symptom complexes produced by the multitude of possible pathologic changes is ancillary to making a correct diagnosis. Much harm and misery have been brought upon patients by impatiently-made diagnosis of C.N.E. (chronic nervous exhaustion), H.Y.S. (hysteria), and such labels as functional, neurasthenia, or hypochondriac given with a minimum of sympathy, insight, and knowledge, and used as epithets. A patient may be committed to an insane hospital as a psychotic, when the trouble is a chronic subdural hematoma.[69]

After head injuries, it is important that certain objective features be noted for future reference. Although psychiatric descriptive terminology may appear foreign to the occasional examiner, the use of certain designating terms is necessary for concise, clear records and for medicolegal purposes.*

The patient's emotional tone, insight, stream of thought, and manner must be recorded. Anamnestic data should be obtained, and any confusion or hallucinations, lewdness, verbalisms, neologisms, mannerisms, negativism, or illusions noted at the first examination. Any paranoid or depressive trends must be recorded at the time his sensorium and intellect are quantitated. It is especially important to test recent and remote memory, retention, and recall, calculation facilities, and general knowledge. Alexia (letter or word blindness) or aphasia (loss of memory for words and sounds) can be observed during the examination, and in head injuries, agnosia (inability to recognize objects), and apraxia (inability to perform purposeful movements) are important. In fact, agnosias are localizing.

Cerebrospinal fluid quantitations and dynamics and roentgenograms of the spine should be obtained. Roentgenograms of the skull must be postponed as elective procedures unless an acute surgical lesion, such as extradural hemorrhage or fracture with symptom-producing pressure is evident, in which case only one or two films, with gentle positioning of the patient should be permitted. If an intracranial injury is suspected in the presence of dilated retinal veins or papilledema, the Queckenstedt test is not done. Spinal puncture to discover subarachnoid bleeding is unnecessary because the presence of blood means nothing relative to the extent of injury, to the treatment, or to the prognosis, and because a careful examiner can detect bleeding by signs of meningeal irritation, without spinal puncture. Kernig's, Lasègue's, and Brudzinski's tests should be used to elicit meningeal irritation.

The cranial nerves must be tested in orderly fashion. The olfactory nerves cannot be examined satisfactorily because of common local nasal diseases, and therefore, anosmia is not diagnostic.

I. Perimetric aberrations may be noted without obtaining exact form fields or delineating scotomas with the tangent screen. Ophthalmoscopy under cycloplegia (2% homatropin hydrobromid or 1% cocain hydrochlorid), especially in the presence of the miosis of skull injury, is necessary. Elevation of the nerve head does not indicate a choked disc, because the normal disc may be elevated or depressed in relation to the chorioidal vessels. It is the appearance of the disc *margins* and of the vessels at the disc circumference which determines the presence or absence of papilledema.

III, IV, VI. Extra-ocular movements, accommodation and light reflexes, the consensual reflex, and conjugate deviation are tested. Anisocoria or nystagmus must be recorded. Nystagmus is important if present with other positive neurologic findings.

V. Masseter and pterygoid strength is tested by ability to resist the examiner's attempt to open the closed jaws, and by moving the mandible against resistance. The three sensory divisions are tested by pin and cotton.

VII. The upper division is tested by directing the patient to wrinkle his forehead and close his eyes tightly. The lower division is tested by directing him to show his teeth, whistle, or blow out his cheeks. I routinely test taste on the anterior two thirds of the tongue with sucrose, sodium chlorid, quinin and acetic acid. Ageusia itself, however, is not localizing. Supranuclear seventh nerve injury usually is associated with ipsilateral abducens paralysis (eye turns in).

VIII. The cochlear division is tested by ability to hear a vibrating tuning fork or a watch, but the vestibular division is not tested routinely.*

IX, X. Loss of the palatal reflex, significantly only when lost on one side, may indicate glossopharyngeal paralysis. Vagus damage is characterized essentially by voice changes due to unilateral paralysis of the soft palate and of the larynx.

XI. Inability of the patient to rotate the head against resistance by the examiner (sternocleidomastoid paralysis), weakness in raising the arm,

*The following terms are frequently used in connection with head injuries: dilapidation, hypomania, orientative defects, mutism, volubility, stereotopy, agraphia (inability to write), hebephrenia, echolalia, echopraxia, allopsychic, ambivalence, agrammatism ((disorders of word sequence), anarthria (inability to speak), dysarthria, paraphrenia, psychoneuritis (mild or severe burning, constant pain, accompanied by trophic skin changes and resulting in peculiar overcautious symptoms).

*In nerve deafness, the vibrating tuning fork placed on the vertex of the skull is heard best on the normal side (negative Weber's test); in conduction deafness, it is heard best on the affected side (positive Weber).

and presence of a winged scapula (trapezius paralysis) are observed in spinal accessory injury.

XII. The protruded tongue deviates to the affected side in unilateral hypoglossal injury.

The deep reflexes (biceps brachii, triceps, pronator, supinator, patellar, Achilles must be tested for normality, areflexia, hyporeflexia, or hyperreflexia, and the superficial reflexes (upper, lower, and middle abdominal; cremasteric) should be tested. The extent of the arc and force and the emphasis on contraction and return are noted. Babinski's, Hoffman's, Oppenheim's, Chaddock's, and Rossolimo's signs must be tested for.

Evaluation of the motor system involves noting any asthenia, dysplasia, atrophy, hypertrophy, hypotrophy, contractures, atonia, or asynergia. Any tremor should be characterized as athetoid, choreiform, kinetic, static, coarse, fine, passive, or of intention type. Paresis (weakness) must be distinguished from paralysis (total loss of function). The integrity of the paleokinetic system (the automatic associated movements controlled by the corpus striatum and the neokinetic system (the voluntary motor movements controlled by the cerebral cortex) is estimated. An invaluable test in this connection is the adequacy of muscle check, performed by attempting to extend the patient's flexed elbow; when the check is inadequate, release of the forearm by the examiner will result in an overthrow.

Ataxia, dysmetria, and adiadokokinesia, characteristic of cerebellar injuries, can be elicited by the finger-to-finger, finger-to-nose, heel-to-knee, past-pointing, and Romberg's tests.

Superficial touch is tested by stroking with the finger tips or with cotton. A pin-point, occasionally replaced by the pin-head, is used to test pain. Heat and cold sensation need not be tested for because the dendrites run with those of pain in the lateral spinothalamic fasciculus. Kinesthesia (deep sensation) is tested by the vibrating tuning fork over bony prominences, by compressing a muscle belly, a tendon, or a testicle, by positioning the great toe, and by the integrity of stereognosis.

Summary

INCREASING reliance on initial examinations for determination of responsibility and judicial action in injuries to the nervous system is a compelling indication for initial searching examinations and complete records. Certain data are indispensable to records which can withstand critical legal scrutiny. Abundant documentation attests to the advisability of early differentiation between psychogenic and organic neurologic disease. A plan of examination, used with satisfaction over 14 years in cases of neurologic injury is suggested as a pattern for other examiners.

(125 East Eighth Street.)

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Fuzzy Thinking

Unfortunately, there is a lot of fuzzy thinking in the area of government provision of benefits. For example, there is in New York a law requiring employers to furnish disability benefits in the case of non-occupational illness or accident. New York is one of four states having such laws. Fortunately, the trend in that direction has been held, at least, in status quo for several years. Those of us who are interested in individual enterprise can only hope that the trend has been fully stopped. Not long ago an officer of a company in another state indicated that he had helped to draft a bill for non-occupational illness and injury coverage; he said he did not see how anyone could draft such a bill without providing for some employer contributions to the cost. He was, in effect, saying that employers must be compelled by the state to pay part of the costs of non-occupational illnesses, such as pneumonia resulting from swimming in a mountain lake while the employee is on vacation. If this thinking prevails, in time the employer will be paying the full costs of non-occupational illness as he now pays the full costs of diseases and accidents under workmen's compensation laws, and there will be a complete meeting of the trends. The employer will then be completely responsible for his employee "in sickness and in health, 'til death do us part." The shotgun wedding will have been consummated.

—From "Benefit Plans—A Shotgun Wedding?" by E. S. Willis, in *Office Executive*, June,

The Organization of Medical Services

JAMES H. STERNER, M.D., President, American Academy of Occupational Medicine
Medical Director, Eastman Kodak Company, Rochester, New York

IN THESE two days, because you are here in Rochester, you have seen and heard a great deal about the Eastman Kodak Company. In the next few minutes, I'm going to give you a brief recapitulation of our medical programs. Over the years we have visited many of your medical units and have gained a great deal from seeing and hearing about your industrial medical activites.

One of the things that has disturbed me in these two days is to hear so many people from the Eastman organization say, "Well, of course, we don't have all the answers." You may infer that we think we have nearly all the answers, when, of course, that is far from true. We hope we have done and are doing a creditable job—but the major credit must go to Dr. William Sawyer, whom I succeeded as Medical Director of the Company, and to Dr. Ben Slater, whom Dr. Norris followed as Medical Director of the Kodak Park Works.

Here are some of the vital statistics of the Company and our medical program. We have about 37,000 employees here in Rochester, of which, as you have heard, 20,000 are in Kodak Park. The ratio is about two men to one woman in the plants. Our average age for men is 39 years; for women it is 33 years. The average length of service is 11 years for our men employees and seven years for our women.

Now, something about our lost time due to illness: For men, it is 2.7% and these are the figures for 1951. Of the total lost time due to illness and accidents, the accidents accounted for .07%, which gives us a ratio of about 40 to one for non-occupational illness to industrial accidents, or 40 days lost for personal illness to every one lost to occupational injury and disease.

For women, the rate is about twice what it is for men, 5.9% of the total hours scheduled being lost due to illness and accidents, of which only .05% is due to industrial accidents, or a ratio of about 100 to one; that is, for every one day lost due to industrial accidents, there are 100 days lost due to non-industrial illnesses and accidents.

Our total rate, then, for all men and women is about 3.7% total lost time due to illness and industrial accidents of the total scheduled hours.

Our total Medical Department budget is somewhat over $800,000, at a cost of a little more than $25 per employee per year. That part which is chargeable to "compensation" is about $4 per employee per year, so that the non-compensation aspects of the medical program are about $21 per employee per year.

Some information now as to accident frequency rates and severity rates. I should state that the direct responsibility for the safety program is vested in the Safety Department. The two organizations, the Medical Department and the Safety Department, work hand in hand. It is an excellent example, I think, of the fact that the willingness and ability to cooperate are the important element, not the relation on the organization chart. I think the secret is that we are both so busy that we haven't time to interfere with the other fellow's job. We get together frequently, and the Safety Department representative is in the Medical Department much of the time, following up on accidents, getting additional information from us, and we, in turn, are helpful to him on occasion.

Our frequency rate is 5.6; our severity rate is .21. While some companies have better rates, these are on the good side of the average for the country.

As to Medical Department personnel—we have 24 full-time physicians and 17 part-time physicians. These include one full-time and eight part-time ophthalmologists, and part-time specialists in psychiatry, surgery, orthopedics, cardiology, and chest diseases. We have a physician-employee ratio of one to 1400 at present. That will be increased as we get additional office space for doctors.

We have 64 nurses, or a nurse-employee ratio of one to 600; eight laboratory technicians; 12 x-ray technicians; and three industrial hygiene chemists, who work under Mr. Crouch—and we shouldn't call them all industrial hygiene chemists, because we have an industrial hygiene physicist working on our noise problem.

There are three main medical units, one at Kodak Park Works, one at Kodak Office-Camera Works, and one at Hawkeye Works. We have two additional units with part-time service of physicians, and five stations that are manned solely by nurses.

In 1951, our dispensaries were by far the largest dispensary service in Rochester, surpassing the total of the out-patient services of the hospitals in the city. I should state that Kodak employs about a third of the manufacturing workers in the city.

The number of visits to the Medical Department is a little more than one per employee per month, which agrees pretty well, I think, with many of your experiences. As to the type of services—the ratio of non-occupational conditions is about four to one; in other words, about 80% non-occupational to 20% occupational. While an employee is seen for any medical condition, prolonged illness is referred to his family physician. Self-limited or short duration illness is treated in the dispensary.

As to radiographs—and you might suspect that we are active in this respect since we have a greater than average interest in radiography—last year we took 34,900, of which 16,000 were chest x-rays.

As to occupational injuries, minor conditions are treated in our own Medical Department. Major traumatic injuries that must be hospitalized are referred to the surgeons in the various city hospitals, depending largely where the individual wants to go or where there is a special type of surgical care provided. In most cases we work closely with the surgeon, particularly in matters of rehabilitation and

This is the closing presentation at the February 13 session of the Fifth Annual Meeting of the American Academy of Occupational Medicine at Rochester, New York, February 12-13, 1953.

return to work. The few cases of occupational disease, suspected or actual, have been hospitalized under the direct care of our medical staff in city hospitals where we have staff appointments.

The preventive aspects of the program have become increasingly important. More emphasis has been given to the pre-employment examination, to the executive examination, and to what we call our industrial hygiene examinations. Many of our surveys have been of departments, with emphasis on the industrial hygiene aspects. A most important part of the preventive program is performed by individual consultation, with a current illness being used as an opportunity to develop a positive action for better health.

With purpose, rehabilitation in the plants has not been a "program." Employees and applicants with a disability are considered on an individual basis—the Medical Department, the Safety Department, the Personnel Department, and the various operating departments collaborate to improve the ability of the individual and to modify the job so as to utilize most effectively the individual's capacity. Such a positive approach has resulted in placing or retaining at useful work many individuals who, under less fortunate circumstances, might not have been able to continue at full-time, productive labor.

The Medical Department is directly responsible for the industrial hygiene program. Dr. Fassett is Director of the Laboratory of Industrial Medicine, which includes our industrial hygiene activities. The clinical work is done in the laboratory in the Medical Department. The environmental measurements are a responsibility of the Medical Department.

The toxicology section of the Laboratory of Industrial Medicine is under Dr. Roudabush. The work is performed in an air-conditioned building specifically designed and constructed for toxicology. The studies, chiefly acute and short term, are conducted for all divisions of the company in this unit.

The coordination of industrial hygiene evaluation and engineering activities is under the supervision of Dr. Riley—who was a mechanical engineer before he obtained his M.D. The actual design and construction of engineering control equipment are a function of the Engineering Division of the company, but the liaison and cooperation with the Medical Department is smooth and effective.

Health education activities are many and varied. Personal counseling by doctors, nurses, nutrition advisers, is an important factor. Group education utilizes such media as pamphlets, displays, motion pictures, and articles in the employee weekly, *Kodakery*.

I should ask Dr. Sawyer to tell about the nutrition program, which is unique in industrial circles. We have nutritional counselors in each of our plants, working in the Medical Department and reporting directly to it. In addition, a program of training of industrial dietitians was developed under Dr. Sawyer's inspiration, and each year eight student dietitians who have just completed their courses in approved schools of dietetics come to the company. They receive a year's internship in industrial cafeteria planning, operation, and management.

The sanitation control of our cafeterias is performed by the Medical Department. We have a bacteriologist who applies the standard test procedures for the sterilization of utensils and equipment, and does an actual physical inspection and rating. This operation is another aspect of the work of the Laboratory of Industrial Medicine.

Problems of general sanitation in the plant frequently are referred to the Medical Department. Occasionally—as, for example when we were asked for the most successful way to get rid of pigeons—our ingenuity may be overtaxed.

Our interest and activity in training have increased in recent years. The majority of our full-time physicians hold appointments in the Medical School. At the undergraduate level, instruction is given to the second, third, and fourth year students. We participate in the training program in occupational medicine at the postgraduate level, accepting the responsibility for the courses in the practical aspects of industrial medicine, toxicology, and industrial hygiene. This year, for the first time, we have an in-plant resident—the final year of a postgraduate training program in occupational medicine—and we are looking forward to continuing and expanding this activity.

Of the more than 60 industrial nurses, the great majority are in the dispensaries—varying from a large centralized unit like the main Kodak Park Medical Department, to single nurse-manned stations in some of the smaller plant units.

The Visiting Nurse Service, with 12 nurses, is an important link between the company and the employee who is ill. Visits are made in case of illness or of unidentified absence on the third day of absence. Actual bedside care is limited, the more important features of the service being the reasonable assurance that the employee is receiving medical care, the aid in such matters as early delivery of sickness disability checks and pay checks, and the verification of the diagnosis. The positive helpfulness and cheerful approach of our Visiting Nurses have gained their complete acceptance by our employees.

Within the past two years, we have instituted a training program for all of our new nurses. Each is rotated through a series of experiences—in large and small dispensaries, in the Eye Service, in the Visiting Nurse Service, in orientation periods with safety, industrial hygiene, nutrition, and industrial relations activities. During this program she is given specific instruction, previously allocated to each unit, so that her three-month training period introduces her to a good cross section of our industrial nurse activities. In each unit, the supervisor reports concerning the progress of the trainee, so that by the end of the training time, Mrs. Waldert, our Supervisor of Nursing Services, is better able to direct the final placement. Incidentally, we ask the trainee to give a critical and confidential evaluation of the training program, and we have had some invaluable aid in strengthening the course.

The Eye Service is under the supervision of a full-time ophthalmologist, Dr. Leonard Jones, and considerable attention is given to the problem of placing employees on jobs for which they have a proper visual capacity. Safety glasses are required on many operations. A number of part-time ophthalmologists assist in the plant Medical Departments.

To make the wearing of safety glasses more effective, we have three full-time optometrists who set up portable examining stations as close as possible to the particular department requiring attention. Every employee in the department who is required to wear safety glasses is examined at regular intervals, refractions performed, and glass fitted. Cases requiring the service of an ophthalmologist are referred to the Medical Department. This service is popular with supervision and with the employees.

Industrial Medical Association

President's Page

OFFICIAL duties of an Association President seem to revolve around luncheons and dinners. But no matter how many such functions find their way onto my calendar in the months ahead, I am sure I shall remember two luncheons which took place in the first week of the Occupational Health Institute's newly-begun history.

On the surface, there was little in common between these two luncheons: the first in the thrilling setting of the delegates' dining room at the United Nations, as a guest of the U.N. Health Service; the second in the dining room of a New York hotel as a guest of the United Parcel Service of New York.

In both instances luncheon was preceded by the presentation of the OHI's new Certificate of Health Maintenance, signifying certification of the medical service. In both instances table talk centered on the industrial Medical Department—its relationship with the medical profession in the community, its relationship with employee groups in bringing about effective health education, the building of teamwork among management, labor and medicine.

The amazing thing to me was that in two organizations so vastly different in nature—an international community of highly trained and carefully selected skilled workers and professional people, and a commercial organization made up largely of truck drivers, mechanics and manual workers—the Medical Departments face almost identical problems in human relations—with management, with the working force, with the medical profession of the community.

I recall snatches of conversation:

"At first employees were a little suspicious of periodic health inventories; the rumor got around that this was a way of culling out people with minor disabilities and high seniority and pay ratings." It could have been DR. BRANDALEONE of United Parcel speaking, or DR. CALDERONE of the United Nations.

"More and more of our people are looking to the company doctors for advice about where to go for help with family health problems." One of the four union representatives at the United Parcel luncheon elaborated on that point. Judging from the records, it could just as well have been said by a United Nations staff member.

"Having a wide-awake Medical Department makes people more health conscious. All this talk about early detection of disease makes more sense when you know that you have good medical men and detection facilities right in your own company." At both luncheons this point was made.

Among both groups there was comment on the friendly atmosphere of the Medical Department and on the care the doctors and nurses take to keep records confidential and prevent the rumors which can sweep a place of employment and upset a man's whole career.

Through it all, I was struck by these thoughts: If what we accept as good, constructive health maintenance is so warmly accepted in two such different work settings . . . . then isn't this proof that we really do have something worth-while to offer to managements of all types and all sizes? If representatives of management and representatives of three truck drivers' locals and a mechanics' local can laugh together about the suspicions which were rife in the Medical Department's early days, and then stand up together and toast the Medical Director and his Department's newly awarded Certificate . . . . then don't we have something to offer in the direction of better employee relations everywhere?

To me, these incidents reinforce a deep belief that the Occupational Health Institute can be a real *service* organization in the true sense of the word. There are several services for us to perform. There are many managements, large and small, which have not yet seen the light where constructive health maintenance is concerned. There are physicians entrusted with industrial assignments who would welcome a clearing house for ideas and views, especially in human and public relations and other non-professional aspects of their work; there are managements which know they should be doing more in the direction of health maintenance, but simply don't know how to start or where to get assistance. There are companies which have trouble staffing their Medical Departments with the kind of people who can maintain a constructive health program.

In each of these situations and in many others of which you and I as practicing industrial physicians are aware, the Occupational Health Institute will offer practical help. It is toward these ends that we now are gearing the Institute's structure and program. OHI has been organized to be the official center of information and aid in dealing with problems of employee health, with particular emphasis on health hazards peculiar to any specific industry. OHI will supply information to aid in the detection and prevention of employee ailments.

OHI will, upon request, make an official survey of industrial medical services anywhere in the United States, the Hawaiian Islands, or Canada. Upon completion of this survey it will advise management as to the status and efficiency of its medical services and, when they meet with OHI standards, will award its Certificate of Health Maintenance.

OHI proposes to develop research projects to solve unanswered problems, provide information on toxicity, and work out adequate methods of protecting against occupational diseases. OHI plans to establish study programs designed to provide industry with personnel trained to promote, organize and carry on proper medical procedures. These projects and plans will depend for success on both the membership fees and supplementary financial support obtained from industry.

SOON we shall communicate with you, directly and through the pages of this *Journal*, to tell you more specifically of future plans, including the plan of membership which will be open to business and industrial units. We shall tell you about the services which members will receive from the Institute.

There is little doubt that there is a real job for the Institute to do; it is the fervent hope of the Trustees that we are planning and moving in the right direction.

Association News

RESOLUTION adopted by the American Conference of Governmental Industrial Hygienists: "WHEREAS, the Industrial Medical Association has contributed so substantially to the arrangement and excellent facilities of the 1954 Annual Industrial Health Conference; THEREFORE, BE IT HEREBY RESOLVED, that the American Conference of Governmental Industrial Hygienists go on record as expressing its appreciation to the Managing Director of the Industrial Medical Association."

"Heartbeat of Industry"

INDUSTRIAL MEDICINE'S Role in Maintaining Employees' Health will be illustrated in a series of radio broadcasts to be presented, in cooperation with the OCCUPATIONAL HEALTH INSTITUTE, on the Mutual Broadcasting Company radio network, each Sunday from 8:00 to 8:30 P.M. beginning September 12, 1954. The broadcasts, portraying what industries are doing to meet and overcome workers' health problems, will be based on actual case histories. Among the companies whose Medical Departments and preventive programs will be outlined are: American Cyanamid Company; Caterpillar Tractor Company; Chrysler Corporation; Dow Chemical Company; Eli Lilly and Company; International Harvester Company; Mutual Benefit, Health and Accident Association; New York Telephone Company; Pennsylvania Railroad; Procter and Gamble; R. R. Donnelley & Sons Company; and Standard Oil of New Jersey.

Interim American Board of Occupational Medicine

THE Interim American Board of Occupational Medicine is presently negotiating with the American Board of Preventive Medicine relative to the groupings of Occupational Medicine with other nationally recognized professional specialties in the general field of preventive medicine. For purposes of organization, it is desirable to know the number of candidates likely to apply for certification in Occupational Medicine under such auspices. Interested physicians are invited to communicate with DR. CARL M. PETERSON, Secretary, Interim American Board of Occupational Medicine, 535 North Dearborn Street, Chicago 10. Application forms and other essential information will be sent to inquirers as negotiations proceed. Full instructions will include regulations governing basic eligibility, admission to certification without examination, examination procedure, fees, and other details. Prompt response will be appreciated.

Buffalo Conference

PLANS are progressing excellently for the 1955 Industrial Health Conference at Buffalo, New York, April 23-29. To those who may be planning to attend this 1955 Conference, or any other Conference of similar importance, the following note may be of considerable interest—in the future computation of income tax reports: On April 14, 1953, the United States Circuit Court of Appeals for the Second Circuit of New York ruled that the reasonable expenses incurred by a professional man for post-graduate education are deductible for income tax purposes under section 23(a) (1) (A) of the Internal Revenue Code. (George G. Coughlin vs. Commissioner of Internal Revenue, Docket No. 22487.) This action became final July 14, 1953.

Industrial Medicine's Hall of Fame

SIR THOMAS MORISON LEGGE, C.B.E., M.D., D.P.H.

His Majesty's Senior Medical Inspector of Factories
London, England, 1863-1932

Prepared by ROBERT T. LEGGE, M.D., Berkeley, California

DURING the first three decades of the Twentieth Century in Great Britain much of the progress in modern industrial health was initiated. In the year 1899 the Crown appointed the first medical inspector of factories, Dr. Thomas M. Legge. Dr. Legge was born June 6, 1863, at Hongkong, China. His father was Professor James Legge, a Scotsman and distinguished Oxford scholar who after spending 30 years in China published his monumental edition of the Chinese classics and was called to the chair of Chinese language and literature at Oxford University. The son, the subject of this sketch, received his preliminary education at the Dollar Academy in Scotland and then at Magdalen College at Oxford. He entered Oxford University as a commoner in Trinity College where he completed his academic education. He decided to study medicine, leaning toward public health and preventive medicine; he entered St. Bartholomew's Hospital and received the M.D. degree from Oxford and the D.P.H. award from Cambridge.

Sir Thomas Morison Legge

Dr. Legge was truly a British gentleman, possessing the attributes so apt to be found in a scholarly home and an Oxford environment. He was well prepared academically and professionally to serve his government, and he fulfilled this promise in developing and promoting a modern system of industrial hygiene. The record of his abundant life was one of a true humanitarian and lover of his profession. He was meticulous and zealous in all his undertakings, commanded the respect of his fellow colleagues, whom he honored and awarded credit for their contributions in research and service to the Home Office.

He traveled extensively on the Continent to study methods dealing with public health. In 1896 he published his first book on Public Health in European Capitals. Later, as Secretary of the Royal Commission on Tuberculosis, he again visited with the commissioners in several states in Europe. With this extensive background he began what was to become his life career as a medical inspector of factories and work shops. His special intent was to safeguard the worker in the dangerous trades. Early his efforts were concentrated on the problems of lead, arsenic, and mercurial poisoning. He fostered enactment of regulations for the prevention of these occupational diseases; emphasized the fact that the inhalation of lead dust was the principal means of poisoning, and instituted exhaust ventilation as a protective measure. Another early interest was in anthrax infection found among wool sorters and in hide and bristle workers. He visited Italy to study with Professor Slavo, of Sienna, the manufacture and use of anti-anthrax serum. This serum he introduced, and established various depots in Great Britain for the treatment of the disease. For the Milroy Lectures at the Royal College of Physicians in 1905 the subject of his address was anthrax. Two of his papers on the incidence of the disease and on the method of steam disinfection as a preventive measure, were published. He also called attention to the fact that glass blowers' cataract was due to the occupation, the heat from the molten glass affecting the lens of the eye. During World War I he disclosed and described the poisonous effects of tetrachlorethane and trinitrotoulene in producing toxic jaundice.

In 1918 he was created Commander British Empire, and seven years later was knighted by the King for distinguished services and contributions in industrial medicine. Sir Thomas Clifford Allbutt, Regius Professor of Medicine at Cambridge, wrote "Never was an honor better won, more efficiently or more modestly." He also was awarded by the Royal College of Physicians the Bisset-Hawkins Gold Medal for distinguished services in promoting public health. Among the many published articles on industrial diseases were two books, "Lead Poisoning" and "Lead Absorption," jointly written with Sir Kenneth Goadby; later a translation of Rambousek's "Indus-

trial Poisoning." He was a contributor to the Nelson's Encyclopedia on industrial diseases and author of four articles for Kober and Hayhurst's "Industrial Health"; namely, Arsenic Poisoning, Health of Brass Workers, Glass Blowers' Cataract, and Occupational Diseases of the Nose, Throat, and Mouth.

In his early days Dr. Legge was a member of the Home Office Departmental Committee on the use of lead paints, also of the Correspondent Committee of the International Labor Organization and the Advisory Committee on Anthrax. He was honored by an invitation to give the Cutter Lectures at Boston, Massachusetts, and the Lowell Lectures on industrial hygiene as well as the Shaw and the Williams Withering Memorial Lectures. Academically he delivered courses leading to the Diploma in Public Health at the London School of Hygiene and at the Victoria University at Manchester.

In 1926 he retired as his Majesty's Senior Factory Inspector to live a quiet life at his country home at Warlingham in Surrey. He had collected a great deal of material for what was to have been his last book on Industrial Maladies, but he died on May 7, 1932, at the age of 69, leaving a wife and two sons. The unfinished book was edited by Dr. S. A. Henry, a close friend and colleague, and printed as an Oxford medical publication. In the preface of the book Dr. Henry paid this tribute to his chief: "That his name will live and the building of the edifice which he commenced on the foundations which he laid so securely will be continued by his successors."

Dr. E. L. Middleton, his successor, in a published memorium said: "His career offered a unique opportunity for the study of the health of the workers in industry, and he was ready and eager to seize it, and, while his generation benefited by the preventive work he accomplished in his lifetime, posterity will value more and more the sure foundation which was laid by him in the principles and practice of industrial hygiene."

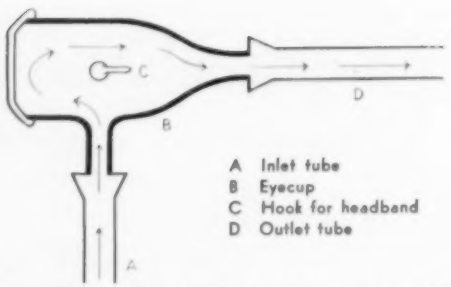
Science Miniature

Irrigating Eyecup

THOMAS W. NALE, M.D., Medical Director
Industrial Medical and Toxicology Department
Union Carbide and Carbon Corporation

THERE has been a need for an eyewash cup which would provide a facility for the continuous irrigation of the eye with water or solutions such as normal saline. Such an irrigation cup should be of a type that the individual could use by himself.

The eyecup which the author had made up is of glass, which can readily be sterilized by boiling, and it was made by a glass blower. The cup is attached to the source of the fluid by a rubber tube. The fluid enters from below and leaves by



a connection from a higher level, thus providing continuous irrigation to the eye. The fluid is supplied from its source by gravity, so that there is little or no pressure. The outlet may be connected by a rubber tube to drain into a basin. Hooks are provided so that an elastic headband can be applied for holding the eyecup in place.

In the course of the eye irrigation, the individual by movement of the eyelids will facilitate a complete irrigation to the eyelids, conjunctiva, sclera, and cornea. This continuous irrigation may be accomplished by the patient himself.

It is felt that the continuous irrigation eyecup should be a useful adjunct to the equipment utilized in first-aid and industrial Medical Departments. It should be useful in the treatment of certain industrial eye injuries such as eye irritations due to dusts, vapors, or fumes. Most authorities recommend immediate continuous irrigation of the eye for 15 to 30 minutes following chemical burns to the eye. The irrigating eyecup is a means of accomplishing this.

Books

Renesthesia

FROM FISH TO PHILOSOPHER: HOMER W. SMITH. Little, Brown & Co., Boston, 1953, pp. 264, $4.00.

Perhaps never before has the evolution of the earth and of man been appraised with the appraiser viewing all through a pair of tenuous ureters ending up in the kidneys. Possibly the implication of the foregoing sentence better might have been stated as the evolution of the earth and of man as viewed through renal glomeruli. It all comes down to this: If there had been no elaborate development of the renal system, there never would have been any man, and certainly there would have been no philosophers.

This provocative book constitutes a threat to the orderly day's work of the physician at the plant dispensary, so its locus should be established as the physician's home for reading during those all too few evenings at home. As a stimulus to just that happening, a few unrelated paragraphs here appear:

"Recognizing that we have the kind of blood we have because we have the kind of kidneys that we have, we must acknowledge that our kidneys constitute the major foundation of our physiological freedom. Only because they work the way they do has it become possible for us to have bones, muscles, glands, and brains. Superficially, it might be said that the function of the kidneys is to make urine; but in a more considered view one can say that the kidneys make the stuff of philosophy itself.

"Had it not been for the moon, and had the earth

cooled with no other catastrophic disturbance, it would today be almost entirely covered by oceanic waters from which there would protrude only a few widely separated granite islands of relatively low relief. Life would probably have been evolved in this geographic wilderness of small islands in a universal sea, but it is improbable that it would have taken the form of the thousands of invertebrates that now exist in the sea, because their evolution has been conditioned by the continuous accumulation in sea water of the large quantities of salts leached out of 95 vertical miles of the earth's crust. It is even less probable that it would ever have taken the direction of vertebrate evolution and produced the air-breathing fishes, the terrestrial four-footed animals, or the warm-blooded birds and mammals. Except for the moon the evolution of life, if any, upon the earth would have been very different.

"Man was certainly not the goal of evolution, which evidently had no goal. He was not planned, in an operation wholly planless. He is not the ultimate in a single constant trend toward higher things, in a history of life with innumerable trends, none of them constant, and some toward the lower rather than the higher. Is his place in nature, then, that of a mere accident without significance? . . . . The situation is as badly misrepresented and the lesson as poorly learned when man is considered nothing but an accident as when he is considered as the destined crown of creation. His rise was neither insignificant nor inevitable. Man did originate after a tremendously long sequence of events in which both chance and orientation played a part. Not all the chance favored his appearance, none might have, but enough did. Not all the orientation was in his direction, it did not lead unerringly human-ward, but some of it came this way. The result is the most highly endowed organization of matter that has yet appeared on the earth—and we certainly have no good reason to believe there is any higher in the universe. To think that this result is insignificant would be unworthy of that high endowment, which includes among its riches a sense of values."

However it all happened, thank Heaven for a pair of hardy, well-behaved kidneys serviceable to physicians as well as philosophers.

Toxic Properties

HANDBOOK OF DANGEROUS MATERIALS: N. IRVING SAX, Toxicologist. Reinhold Publishing Corporation, New York 18, New York, 1951, pp. 848, $15.00.

One of the windmills at which the industrial hygienist—medical and otherwise—has been jousting for two decades, is the belief that the industrialist, the medical practitioner, and the public little know the enormous multiplicity of potentially dangerous exposure provided by industry. The truth is that "jousting" is not the word. The situation is factual. Consequently, most every industrial hygiene bookwriter produces an extensive listing of some of the possibilities. Long it has been said that by reaching into remoter possibilities, some 30,000 items could be assembled that, theoretically, might provide harmful exposure in industry.

This present book stops at 5000 and, thus, stays within the boundaries of the practical. That one figure "5000" (with its added proof) is something with which to conjure. From now on it may be predicted that scores of writings will use that figure as a springboard for more detailed presentations. And so they should; it is dramatic. However, there is no more listing of chemicals. Every item is surrounded by its properties—chemical, physical, and toxic. Its ready availability is going to prevent many a fumbling headache. Add to the general compilation, special sections directed to "Explosives," "Fungicides," "Radiation Hazards," and "Complete I.C.C. Shipping Regulations."

This author, in presenting toxic properties, at times is given to the "worst." Maybe he should. But by some of the wiser heads long widely acquainted with field experience, the charge of "exaggeration" is sure to arise. Take the item "acetone" for example. After a reading, the temptation is to send a wire to those hospitals that freely apply acetone in the removal of adhesive, even from infants. No daily paper runs scarehead type reporting morgues in many cities overfilled with hospital patients professionally slain by the hospital's corps of nursing aids. The author cites a tolerable limit of 500 ppm, which indeed is the upper limit set by the governmental hygienists, while the American Standards Association rejected 3000 ppm as too stringent. Perhaps the truth is that the quality of pungency rather than toxicity will determine that the practical use will see to it that only low levels of exposure will be acceptable.

In a manner this book is a "Toxicologic Merck's Index." That expression is designed as praise for both Merck and Sax. In that language is no occult guile. One of the stimuli to admiration is the obvious toil and sweat, patience and devotion, requisite to the compilation. A thousand users will see to it that it is not merely a labor of love. This book is useful and the copy at hand is prized.

The Outsized Persons' Needs

SYMPOSIUM ON HUMAN FACTORS IN EQUIPMENT DESIGN: Edited by W. F. FLOYD and A. T. WELFORD. John de Graff, Inc., New York, 1954, pp. 132, $4.00.

In the reviewer's kitchen, where he is chef, is a fancy gadget to facilitate the draining of excess water from pots and pans after cooking vegetables and such. That might have been a mighty useful device but it isn't. It is made righthanded when the natural position is to hold the pan in the right hand and drain with the left. That can't be done. The device, with its handle, is as inescapably right-handed as a golf club. The same awkwardness attends the nearest food preparation bench, three inches too low for effortless duties. Here, to remedy the difficulty, a second table top three inches higher over-rides the standard one. In despair the complainer drops into the best chair in the living room only to sink to such depths that he resembles a grasshopper and calls for three sizable pillows to elevate the chair seat to comparative comfort. Doubting that all this discomfort can be true, this six-foot-two "high pockets" tests reality by standing before a mirror intended for adults and the topmost thing to be seen is the top vest button. It's a small man's world.

Seeing this book unopened and merely reading the title caused a shout of joy, "This must be it!" This meritorious book is just part of "it." With characteristic thoroughness those Britishers start too far back. This book is mostly the running start before the take off in behalf of the outsized persons' needs. There are so many preliminaries and bypaths that nothing is done about that mirror of mine when I want not to see my bosom but my face, and without spraddling.

It is an insult to author and publisher alike when

a reviewer introduces the listing of chapter headings solely to fill up space. In this instance that device becomes useful in support of the contention that this book is the magnificent prelude. More significantly that device is embraced since every chapter is a complete entity often unrelated to all others and deserving examination. So: "The Anatomy of Work," "Body Size and Work Spaces," "Body Measurements of the Working Population," "Chairs and Sitting," "The Range and Strength of Joint Movement," "The Physiological Effects of Climate on Man," "Heat Loss by Radiation and Convection from a Clothed Thermostat and from a Clothed Man," "Abstract: Circulatory Insufficiency in the Standing Position," "Experimental Studies of Physical Working Capacity in Relation to Sex and Age," "Perceptual Problems involved in Observing Displays," "The Human Response to Variations in the Design of a Visual Indicator," "Speed Stress," "Movement and Force in Sensori-Motor Skill," and "Equipment Layout."

The authors' might as well agree that the book's title seems far removed from that excellent chapter "The Physiological Effects of Climate on Man." Nothing therein deals with the effective design of igloos. In one chapter is a pontifical gem likely to lie fallow until timely rescued by some five-foot one-inch hard working machine operator—"In a work space, a change of one inch, or even one half inch may make an appreciable difference to the ease in operation and comfort of a considerable proportion of operators." That's a book in itself.

The highest praise is to demand another book—a continuation—a sequel. That plea is here made, and the authors are competent. When they do, will they please mention that it is most uncomfortable to have to lie on the floor to get at the lowermost drawer of the file cabinet; ask the manufacturers of office coat stands if it might not be possible to make them six inches taller so that four inches of my coat will not neatly drape the floor; add to the lot that little item of having to do a goose neck when driving to see the overhead traffic light. The life of the extra short and the extra tall is hard. The Ergonomics Research Society having achieved well, needs to go further.

Railway Hospital Associations

IN REVIEWING the history of the railway hospital associations, I am impressed that the majority of them are still functioning, and some of them go back to the 1880's. I think it is generally accepted that the railroads were the first major industry to begin safeguarding the health and safety of employees. It is true that railroading was a dangerous occupation in those early days, when all too often a hand minus one or more fingers was the trademark of the man who worked among the boxcars. Originally those early departments handled only employees who were injured while on duty or on company property; but as time went on, it became apparent that medical help should also be extended to employees who were ill or who had been injured off the job. In that early period of no telephones and generally inadequate communication, employees frequently had no way of knowing who the right doctor was for their illness or injury. In their territories, railroads began appointing chief surgeons, who were given the responsibility for organizing departments on local, district and division levels, and of obtaining the best available doctors to fill those posts. The cost to employees of medical service back in the 1880's and 1890's was modest, running as low as 15 cents a month and averaging from 35 to 50 cents. As employment increased, the membership of the associations increased. Over the years, with the march of medical science, more and more benefits have been extended to contributors. As a result of these increased benefits and of expanded medical plants, as well as the changing value of the dollar, the monthly cost of this protection naturally has risen. Today it varies from 1% of the employee's salary up to a top of about $6 a month. Actually the ratio of medical protection costs to dollars earned is largely unchanged from the past. What has changed is the value and the extent of services received by employees today. These services are vastly better than those given in the 80's and 90's. Today, practically complete medical and surgical care, based on the finest in research and the best in equipment, is extended to contributors, whether they require treatment for illness or for injuries. . . . The success of the railroad hospital associations is reflected in the way they have been imitated. In recent years, various plans sponsored by non-profit hospitalization groups and insurance companies have come into being, created by forces similar to those that brought forth our hospital associations decades ago. In addition, industrial medicine has had an enormous growth. It is a rare exception, however, when benefits paid by any of these other plans are the equal of benefits paid by our hospital associations. It is not necessary for me to dwell upon the fact that our hospitals are staffed by the finest nursing, technical and non-professional personnel, and furnished with the best of equipment. As for our surgeons, it is the fact that they are the equal of those who practice in the finest hospitals in the land. Indeed, they often are the same men. Now for some brief and, I hope, interesting statistics. On our American railroads, there are some 1,250,000 employees, about 60% of whom are covered by one or another form of medical protection. The task of keeping these 750,000 employees in good health is a vast one. Using the figures of the Illinois Central Hospital Department as a basis, I believe we can arrive at a fairly accurate picture of the combined work done by all the railway hospital departments represented in this association. Last year 125,000 contributors were hospitalized and received 60,000 operations and some 1,300,000 days of hospital care. Distributed among all employees were 4,500,000 visits to the home, office or hospital, and 5,250,000 prescriptions. In other words, one out of every six employees went to the hospital and had 11 days of hospital care. The average employee during the year had six visits with a doctor and received seven prescriptions. The total value of all this medical service, figured conservatively, was more than $59 million.

From "The Surgeon's Place on the Railroad Team," Address by WAYNE A. JOHNSTON, President, Illinois Central, at the Sixty-Sixth Annual Meeting of the AMERICAN ASSOCIATION OF RAILWAY SURGEONS, Chicago, April 7, 1954.

INDUSTRIAL MEDICINE AND SURGERY

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Fluoridation, Industry, and Occupational Health

IF THE LONG and well accepted practice of chlorination of city water supplies were being installed today as something new, hue and cry would reach to Heaven, threatening the very orbits of the stars. Shouts and protests from the ignorant masses would lead to indignation meetings, to protesting injunctions and possibly to the introduction of bills into Congress. Long ago wiser heads prevailed and were it not for the beneficent chlorination of water many of those now alive long since would have died of epidemic diseases thus preventing further protestation of anything.

Fluoridation of water supplies now is in that state of ignorant protestation in all too many quarters. It is only a question of time until fluoridation will be the rule in the United States, wherever public water systems are provided. Backward cities like Cincinnati, which recently voted down fluoridation with a vengeance, sheepishly will come into the fold hoping that their change of heart will bring about only a few "I-told-you-so's." In the meanwhile, the unvoting, small children of these recalcitrant communities suffer.

FREELY it may be granted that fluorine and its compounds are dangerous substances improperly used, just as chlorine is dangerous. But, that has not deterred chlorine's lifesaving use in water. Fire is a dangerous chemical process fully to be dreaded but that knowledge does not keep millions of persons from going about their affairs with matches or lighters in their pockets. The intelligent use of fluorine in water supplies properly applied is far less dangerous in its potentialities than a packet of matches. Against fluoridation there are bales of wilful testimony but no shred of evidence that that chemical, rightly used, threatens the well being of those fortunate enough to receive its blessing.

In the building up of bugaboos to frighten the easily frightened, industry and industrial medicine, against their wills, have been brought into the picture. It has been asserted that in industry all manner of delicate operations would be disordered even by the minute traces of introduced fluorine. It is true that various activities in industry would be upset by the use of any tap water regardless of a fluorine content. No laboratory would undertake its pursuits without reliance on distilled water. It is not known that in any branch of industry protests have arisen condemning fluoridation as ruinous to industrial operations. Should that come about, water modification readily could be achieved on the premises.

One thing of a little more substance arises from the fact that in any industrial city perhaps less than 1% of the entire water supply is consumed in drinking and in foods. It does appear uneconomic to fluoridate 99% of a city's water for use wholly unrelated to the benefits of fluorine. The proper answer appears to arise from well-nigh universal chlorination. That same less than 1% of chlorinated water is imbibed and at no little costs, yet few protests appear. All know that the disaster of some epidemics is warded off by chlorine.

INDUSTRIAL PHYSICIANS have been importuned to protest fluoridation of water since among those workers engaged in operations involving the use of fluorides it would be more difficult to detect those workers afflicted by industrial fluorine poisoning. Moreover these industrial physicians have been urged to believe that any workman manipu-

lating fluorides on his job by drinking fluoridated water would have just that necessary increment to bring about industrial fluorine poisoning that otherwise he might escape. The response is that the content within drinking water is a mere trifle compared with the much larger quantities required for industrial poisoning. Altogether it becomes unlikely that industrial physicians will lend support to these efforts to have them join in unwarranted protests.

One of the things that the shouting disbelievers need to know is that daily in the excreta of all persons there are traces of fluorides and these fluorides are good, and are helpful to health. This was true a thousand years before the term "fluoridation" appeared in the dictionaries. More importantly, all natural water imbibed by the public contains traces of chemicals more dangerous than the fluorides, for example, manganese. Fluoridated water is not "poisoned water" any more than chlorinated water is "poisoned water." It is to be hoped that in time, and short time, the most stubborn of the fluorine haters will come to bless their knowing betters.

Higher Note

A TEXTBOOK on Industrial Pensions published 25 years ago contained the following: "It is a phenomenon of public goodwill that the highest point to which it can be developed by products, is far below the higher point to which it will climb when the public becomes aware of the employer's real efforts to improve the conditions from which the products come. A number of employers have already demonstrated this; they are consistent advertisers of the fact that their employment conditions are maintained on a high ethical level as carefully and completely as their products are maintained at the top-notch of quality. They have hit a newer, and a higher note; the immediate interest, expressed in buying, has the foundation of a more permanent interest, expressed in the continuing appreciation which results in repeated buying."*

The number of employers referred to was small; Standard Oil Company (Indiana)—advertising its industrial relations, death benefits, and annuity and stock purchase plans—was the outstanding example. The foregoing, therefore, was written as an expression of little fact but large hope—with a hint of prophecy that now seems inspiration. The number of pension plans has grown from the 1500 or so then in existence to nearly 20,000. "Fringe benefits," including pensions, are an established and expanding percentage of the cost of almost everything that is bought and sold; they are so commonplace and well-nigh universal as to have passed the zenith of their attractiveness from a customer-goodwill standpoint. Happily now they are almost completely taken for granted.

INDUSTRIAL medicine and industrial hygiene have never been considered "fringe benefits," nor is it in their nature that they should be. From the customer point of view they are part of the highest persuasion of quality. From management's point of view they are as essential as any of the material components of profitable business operation. We refer to the kind of management that is as sensitive to and perceptive of human values as it expects customers to be of material values—such a management, for example, as the one responsible for the full-page advertisement of American Cyanamid Company in *The Saturday Evening Post* for August 21, 1954. Under a color picture, and the caption "What's in the Air?" the advertisement says:

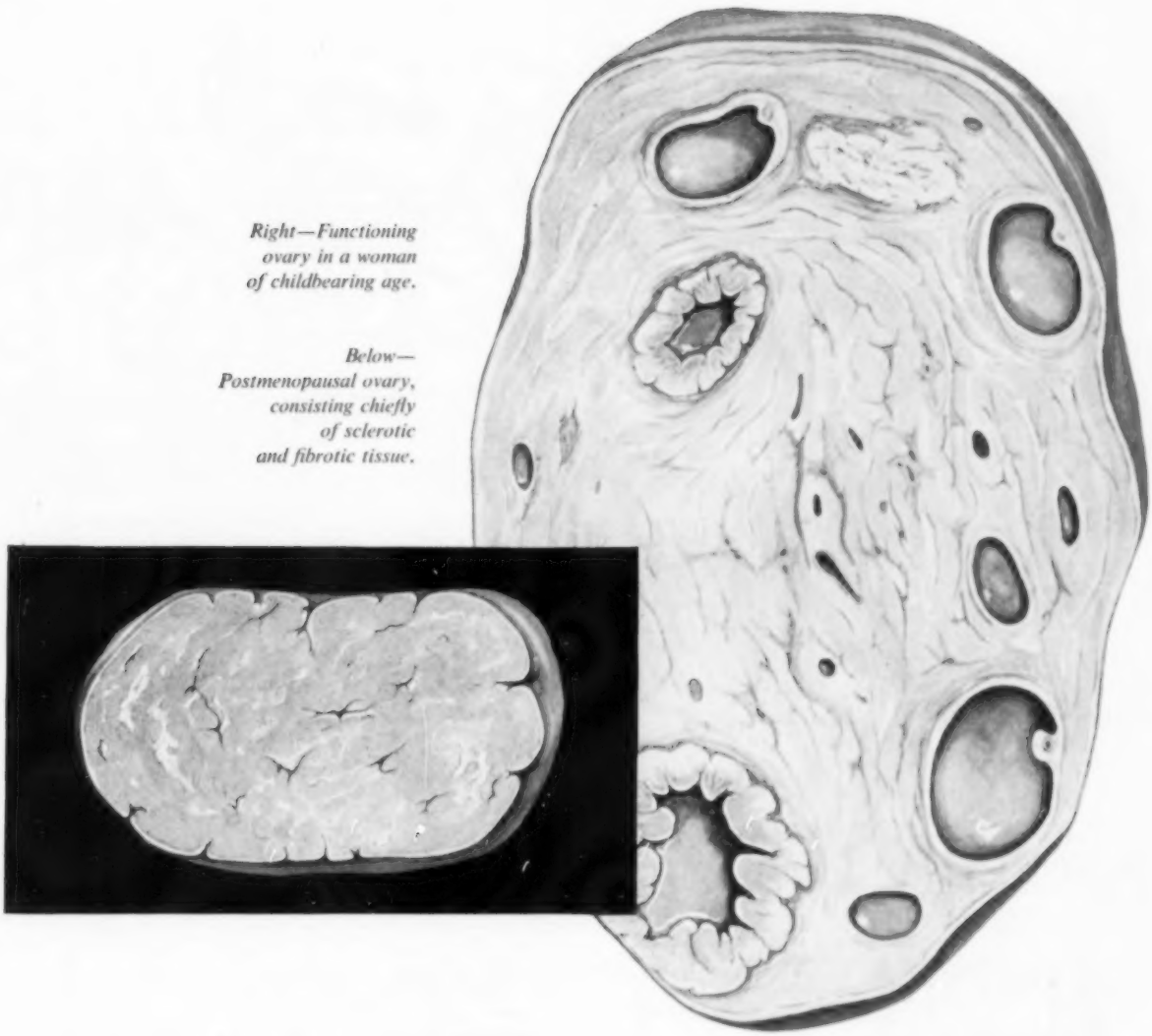
"This man is looking at air. The unusual instrument he is using is an interferometer—one of three used in industrial hygiene in the United States. It enables him, through color patterns, to measure concentrations of vapors and gases present in the air. This is one of many ways in which American Cyanamid Company protects the health of its employees as part of a broad program of preventive medicine. Under the direction of a Central Medical Department, a staff of doctors, nurses and industrial hygienists is organized to promote good health at each of Cyanamid's plants and offices throughout the country—and provide prompt medical aid when needed. Members of the Medical Department work closely with local specialists and family physicians in protecting employee health. They also cooperate with customers, and with industry and professional groups in maintaining high health standards. And they exercise constant vigilance over all Cyanamid products and processes to make sure that no health hazard exists without proper safeguards. American Cyanamid Company believes good health is a most important asset. This is why it was one of the first in the country to initiate a modern, comprehensive program of preventive medicine."

This, we believe, makes American Cyanamid Company also "one of the first in the country" literally to tell the world about its medical program; and very probably the actual first to do so with a comparable bringing together of (1) something to say and (2) the brains and (3) the money to say it in (4) a place where the world can read it. If this comment should be thought congratulatory, it is so intended.

*Pensions in Modern Industry, by A. D. Cloud. Published by Hawkins and Loomis, Chicago, 1929.

Right—Functioning ovary in a woman of childbearing age.

Below—Postmenopausal ovary, consisting chiefly of sclerotic and fibrotic tissue.



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The dosage in menopause is one tablet (3 mg.) two or three times daily for two or three weeks; then reduced to one or two tablets daily as long as required.

[1]Sturnick, M. I., and Gargill, S. L.: Clinical Assay of a New Synthetic Estrogen: Vallestril, New England J. Med. *247*:829 (Nov. 27) 1952.

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BiSoDol Powder . . . Fast acting, antacid alkalizer . . . Packaged in a 16 oz. wide-mouthed bottle for easy, quick dispensing. BiSoDol® is exceedingly effective in relieving upset stomach, acid-indigestion, "gas," heartburn, sour stomach, fullness, nausea and other forms of distress when caused by excess stomach acidity. $2.00 each.

BiSoDol Mints . . . For greater convenience, BiSoDol is also packaged as mint tablets, 500 to the bottle. BiSoDol Mints are so palatable that they may be taken without water, if desired. $1.70 for 500 tablets.

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News, Comment, Opinion

WHENEVER a new discovery is reported to the scientific world, they say first: "It is probably not true." Thereafter, when the truth of the new proposition has been demonstrated without question, they say: "Yes, it may be true, but it is not important." Finally, when sufficient time has elapsed fully to evidence its importance, they say: "Yes, surely it is important, but it is no longer new!" —Montaigne.

Positively Negative

HONORABLE ROBERT E. JAMES, Arbitrator, Industrial Commission of Illinois, made a statement which, to me, deserves the attention of us all who want to keep better records. He said that he prefers on records, "History of no injury" instead of "No history of injury."

—CLEO RHEA, R.N., in "Highlights of the 12th Annual Meeting, AAIN," in *Tennessee Industrial Hygiene News*, July, 1954.

Efficiency

EFFICIENCY, the god of mechanical achievement, has its sinister aspect like other pagan idols. It is the god of the assembly line and the superhighway and the epinephric thrill of going places fast. It is responsible for an obsessive belief in the necessity of working intensively in order to save time that can be spent in working still more intensively. It cuts the corners, it removes the trees that the road may be straightened, it abhors rumination, it is death on dalliance, diversification and digestion.

—*New England J. Med.*, July 15, 1954.

Tax and Spend

THE ancient Babylonians furnished the first pattern for governmental taxation designed to make all social and economic gears mesh. In order to prepare for and wage war, which was the politicians' perpetual concern, a system existed which provided gods who, if properly invoked and rewarded, would endow their worshippers with virility in the sexual sense. Babylon was a state in which sex was cultivated and worshipped to the nth degree in the name of religion. The temples, rituals, priests and priestesses were costly but under such a mythological régime the revenues were vast. In our day simply read social security for virility. Look but a little way into the future and behold in the mind's eye the temples, rituals, priests and priestesses of a voracious tax-eating bureaucracy, even perhaps with all the sacred appurtenances of compulsory sickness insurance.

—Editorial, *Medical Times*, August, 1954.

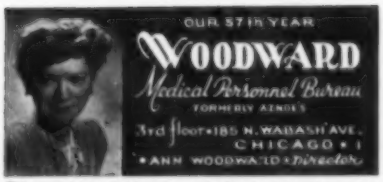
Given the Chance

BY GIVING the Medical Department its proper place in the company organization, and endowing its managers with enough authority, management will be standing on the right doorstep to take advantage of the new concept in industrial medicine—that of using the program to keep unhealthiness away, to be more constructive in meeting employees' total health needs. After all, 90% of absenteeism is owing to off-the-job causes. Of this, three-quarters is a result of illnesses which a Medical Department might have foreseen and prevented.

—From "Is Management Getting the Utmost from its Medical Departments?" by MARGARET L. JONES, in *Dun's Review & Modern Industry*, February, 1954.

Periodic Check-ups

FIVE YEARS' of regular physical check-ups have cut heart trouble, cancer, digestive ailments and overweight among employees of the General Petroleum Corporation. This was revealed by Dr. E. P. Luongo, General Petroleum's Medical Director, in a talk before the American Medical Association. Dr. Luongo told the AMA Section on Preventive and Industrial Medicine that in General Petroleum the incidence of disabling and fatal cardiovascular heart disease has decreased 15% since 1948. Mortality from malignancies of internal organs in males has dropped 33% since 1948. Among female employees, the mortality from breast and pelvic malignancies has decreased 50% in the same period. Disabling diseases of the digestive tract have dropped 20%, and incidence of overweight 40%. General Petroleum, according to Dr. Luongo, has experienced fewer industrial accidents since instituting its program of periodic physical examination. Workmen's compensation costs have been reduced. For example, costs for industrial



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SITUATIONS WANTED

Medical Director: (261) Well regarded in industrial field; degrees from leading schools; long experience as Director, large industrial hygiene and research program; eminently qualified in toxicological problems; early 40's; strongly recommended.

Medical Director: (262) Outstanding man, both administratively and clinically; five years, Medical Director, large company with over 20 plants; complete charge, all policies; recommended without reservation.

Medical Director: (263) Diplomate, American Board, Internal Medicine; FACP; qualified in every phase of industrial medicine; past six years, Medical Director, major company employing 40,000 men. Top level doctor, nationally recognized in industry; early 40's.

Industrial Hygienist: (264) M.D.; excellent experience, industrial division, governmental program, past three years; early 30's. Prefers New England or East.

Industrial Physician: (265) Interested, industrial medicine as career; eminently qualified as assistant to busy Medical Director; age, 30; Class "A" graduate; year's fellowship, industrial medicine; one year; Director, AEC program; interested isotopes, nuclear-energy medicine; Category IV.

Staff Physician: (266) Class "A" graduate; five years, successful private general practice; three years, staff physician, large university; prefers industrial medicine; experienced doctor, well-qualified as an assistant to industrial Medical Director; middle 40's.

Staff Physician: (267) Class "A" graduate; early 40's; four years, surgeon; USAF; fellowship, pathology, three years; two years, assistant Medical director, insurance company; seeks assistantship to Medical Director.

Staff Physician: (268) Class "A" graduate; ten years, successful private general practice; five years, mine physician; prefers industrial position with opportunity for some private practice preferably in the West. Late 30's.

Staff Physician: (269) Class "A" graduate; early 30's; several years, successful private general practice; prefers industrial medicine on salaried basis.

SITUATIONS OPEN

Medical Director: (109) One of major companies in important industry; 26 plants located various sections of America; five foreign plants; 60,000 employees; duties, complete charge program, policies; report to top management; requiries nationally known man; headquarters, New York City.

Medical Director: (110) Chief Physician, several plants located quite near New York City; excellent opportunity for rapid advancement to much higher level; about $15-16,000; career post.

Staff Physician: (111) Foreign operations major American company; Class "A" modern 100 bed hospital; must be able to do minor surgery; two year contract; warm climate; good salary with perquisites equal to about $5,000 additionally.

Our roster is complete with the names of a great number of excellent companies seeking well-qualified staff physicians, interested in career industrial medicine. These fine opportunities occur in almost every section of our country and beyond our Continental limits. Salaries range from $8,000 to $14,000.

Please write for an Analysis Form so we may prepare an individual survey for you.

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hernias have dropped 40% since 1948, and 33% for serious back injuries. "Periodic physical examinations are valuable, beneficial, and profitable to the employee, the employer, the community at large, and the medical profession," Dr. Luongo stated.

—Torrance, California Herald, June 24, 1954.

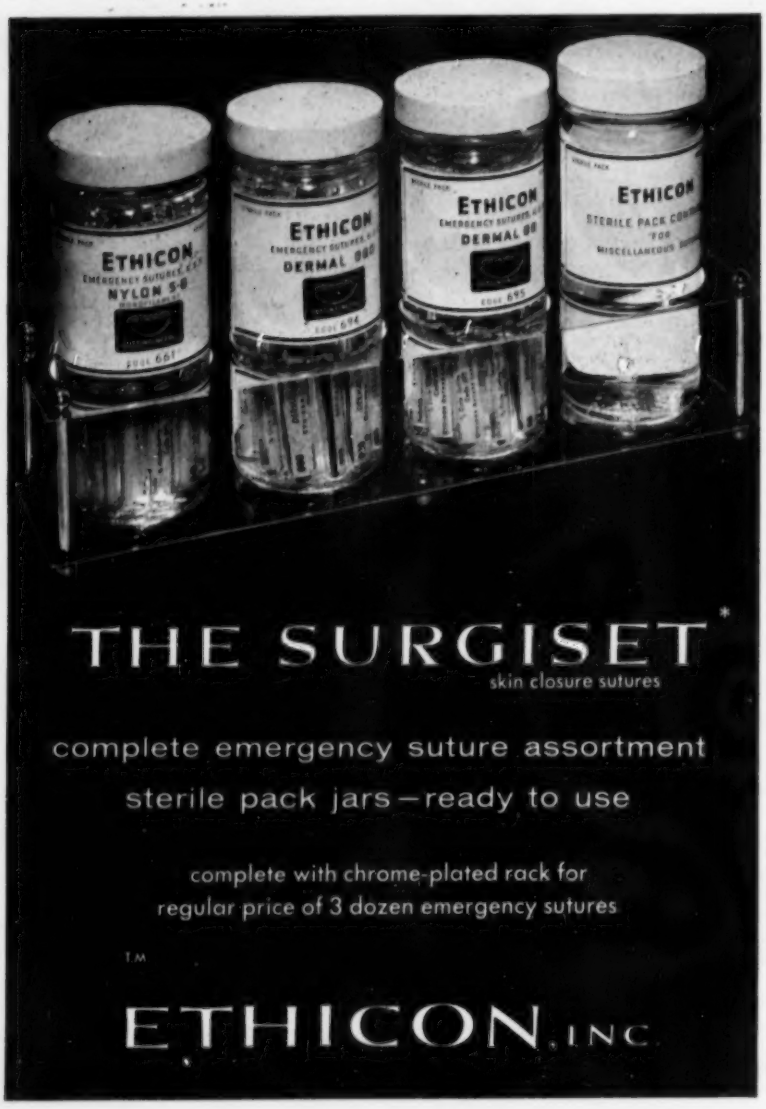
Expert Testimony

THE recent report on "Medical Relations Under Workmen's Compensation in Illinois" which presents medical practitioners in a something less than favorable light, has renewed interest in expert testimony in courts. Many physicians reject such work for fear of having to testify and to submit themselves to harassment by opposing attorneys and loss of time. This question has definite public relations aspects. The Committee on Industrial Health has the situation in hand and is meeting with other interested groups—bar, employers, labor, Industrial Commission, etc.—in the hope of cleaning up a menacing state of affairs.

—Illinois Med. J., July, 1954.

Not As A Stranger

DURING the course of going from one conference to another, I had occasion to read Thompson's book "Not As A Stranger." This is the layman's story of the medical profession: Some quite good doctors, some very bad. The main hero seems to have an extremely distorted sense of morality. In his loyalty to medicine, he can't deviate one micro-breadth from the highest ideal. He worships that mistress with his whole heart and soul. It is his great ideal. He is more than willing to bow to her dictates. When it comes to his personal morality he seems to be very far from an ideal husband or citizen. It is hard to conceive how a man can be so idealistic toward his profession and so immoral in his daily living and so disloyal toward his wife. Since this book has been at the top of the best selling novels for a good many months, it behooves every doctor to find out what the layman thinks of his profession. Some of the weaknesses of the profession that are so clearly described could well be corrected among ourselves before they do any more damage. Some of the doctors pictured, can bring no feeling of pride by any stretch of the imagination. I think the author overstresses the sex angle but one gets the impression this is done to make the book more talked about and hence have more sold. It seems we are living in a period of the world's history when man's mind enjoys delving into the lower rather than the higher regions. However, I would like to give one quotation which indicates Thompson's amazing medical knowledge, as well as his excellent power of description. The one I quote is concerning patients that each one of us sees almost every day. This patient had pain here, there and everywhere and was always ailing and always coming back to see the doctor. The doctor said: "No, no, not malingering. Such people are always a little sick, always a little pain. Blessed are the poor for they shall see God. Well, they can't see him soon enough, because they are really poor. These are the poor material. These



are the ones we are talking about. There are more of them in the world than anything else. Constitutional inadequates. The tissue—just poor material—poor kidneys, but not really weak, just poor, just inferior. It is the substance they were given. Poor material everywhere. Stomach stuff below par, muscles, skin, eyes, arteries, bum tissues. Second rate. Third rate. Never sick, never well, never anything, waste."

—NILS P. LARSEN, M.D., in *Plantation Health*, July, 1954.

Industrial Tours

THE Commission on Industrial Health and Hygiene of The Medical Society of the State of Pennsylvania has recently sponsored tours through two large plants in Delaware County, the objective being to better acquaint the general practitioner with the conditions under which many of his patients work in industry and also to familiarize him with the part played by the industrial physician in maintaining the health of these patients. Planned and supervised by Dr. Glenn S. Everts, of Philadelphia, Medical Director of the Curtis Publishing Company, and Chairman of the Commission on Industrial Health and Hygiene of the State Society, the plant tours in the Ford Motor Company, at Chester, and the Sun Oil Company at Marcus Hook, were eminently successful and achieved the purpose for which they were initiated. Full cooperation was obtained for the plant visits not only from the Medical Directors of the companies but from the officers of the Delaware County Medical Society, industrial physicians in other plants, and instructors in occupational medicine from medical schools. "There must be a concerted action on the part of physicians, in and out of industry, to see that the health and lives of industrial workers are safeguarded in the most effective manner," declared Dr. F. Benedict Lanahan, Professor of Occupational Medicine at Woman's Medical College of Pennsylvania, and consulting physician to the Electric Storage Battery Company of Philadelphia, in addressing the group visiting the Ford Motor Company. "This concerted action will not be achieved by mutual formal exchanges of professional courtesy, but by the direct and frank collaboration of men who know their way about in their respective fields of work," Dr. Lanahan added. "There is a growing desire on the part of all groups concerned to have the private practitioner become better acquainted with the doctor who spends all or part of his time in industrial medicine." All members of the Delaware County Medical Society were invited to take part in these visits to industrial plants in the area. After luncheon at each plant, the guests were taken on tour, following which discussion periods were held. The Commission is considering the sponsoring of similar plant visitations this fall in other industrial communities throughout the state.

—*Pennsylvania Med. J.*, August, 1954.

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creasing amounts for Social Security, private pension and insurance programs, vacations, holidays, rest periods, and numerous other perquisites commonly termed "fringe benefits." Although steadily growing in importance, these fringe payments have been largely neglected in both government and private wage statistics—a fact which has prompted the U.S. Chamber of Commerce to conduct a series of industry-wide surveys on fringe benefits. Following are some of the key findings of the latest of these surveys, based on a summary of data on fringe payments submitted by 529 firms across the nation: Fringe payments for 1953 averaged 19.7% of payroll, including: legally required payments (employer's share only), 3.3%; pension and other agreed-upon payments (employer's share only), 5.9%; paid rest periods, lunch periods, etc., 2.0%; payments for time not worked, 6.3%; and profit-sharing payments, bonuses, etc., 2.2%.

—*Management Review*, August, 1954.

Opportunity

SIXTY-THREE million people—more than two-fifths of the American population—are engaged in earning a living. When we consider these figures, together with those related to absenteeism, compensation costs, and wage losses due to accidents and disease, we cannot but be impressed with the opportunity which employers and employees, physicians and health agencies, have to promote occupational health—especially in small firms. In so doing, they can make a tremendous contribution to the nation's productive capacity, as well as to its health and happiness.

—From "Prevention as a Goal of Industrial Health Services," by LEONARD A. SCHEELE, M.D., in *Minnesota Med.*, May, 1954.

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Die Too Young

OUR major rubber plants, apparently, have pioneered in another field of industrial medicine—keeping key personnel alive. The need for such work is nicely stated in the July issue of a widely-read magazine called *Factory Management and Maintenance*—well-read, we say, in spite of the title. A special report on the health of executives appears in the magazine. In brief, it says they have good eyesight, poor hearing, high blood pressure, abnormalities of heart and lungs, are too fat and die too young. Already the wags are at work on the report, saying the findings are obvious, and add up to this: "Eyes to see everyone else's faults; deaf to good suggestions; a heart of stone; fat salary and dead to pleas for a raise." Seriously, the magazine concludes, executives could live longer, and enjoy life more, if they would stop diagnosing their own ailments, go to a doctor and then follow his advice. This conclusion, we might say, was reached in most, if not all, the gum shops here some years ago. In at least one shop, we know, a list of key personnel is prepared by management and it is compulsory for everyone on that list to report once a year for a complete check-up by the company's Medical Director. Another company offers the same service on a voluntary basis but participation runs as high as 90%. Unquestionably the executives live longer, are healthier—but whether they enjoy life more, in these times, is something we cannot say.

—KENNETH NICHOLS, in *Akron Beacon Journal*, June 18, 1954.

In Praise of Tobacco

THE *Manchester Guardian* has offered words of great comfort for the inveterate smoker. It appears that the recent indictment of smoking by the Advisory Committee on Cancer is little more than the latest contribution to a long and inconclusive debate. As long ago as 1595 there appeared a publication entitled "The Opinion of the Late and Best Phisitions Concerning Tobacco," and in 1603 James I followed this up with a treatise called "A Counterblast to Tobacco." At that time, however, there were those who spoke in favor of the herb. Thus, in 1588, Thomas Harriott presented his "Brief and True Report of the New Found Land of Virginia" and spoke of the many rare and wonderful proofs of the beneficial effects of the tobacco plant. Harritt claimed that it opened the pores and passages and purified the body and preserved it from many diseases common to England. Furthermore, in those days tobacco was obtainable from apothecaries' shops in London, and clients were encouraged to consume it on the premises and exhale the smoke through their nostrils so that the widest possible circulation through the head was obtained. It was, however, during the Great Plague of 1665 that tobacco gained its greatest reputation as a prophylactic. Indeed, Pepys records that he bought some "roll tobacco to smell to and to chaw" to allay his fears on seeing the plague-crossed houses of Drury Lane. At this time, too, it was said that the scholars of Eton College were encouraged to take tobacco daily as a disinfectant. In fact its use as a disinfectant still survives, and even today there are those who claim that the infusion of tobacco is an excellent germicide and the juice from its leaves is occasionally bought as sheep wash.

—JOHN LISTER, M.D., London, England, in *New England J. Med.*, June 24, 1954.

Stress

ARE YOU 'with' the obscure but important *Stress Reaction* of Selye? You should be, and the essentials can be put in a paragraph. . . . Any agent which disturbs a large number of body cells may produce a stress reaction. Heavy infections, big burns, strong medicines, great heat or cold, and strong emotion may provide such an insult. They not only have injurious local effects but generalized, systemic, non-specific reactions. . . . The attempt of the body to react is called the *G.S.A.*, or *General Adaptation Syndrome*, which can be divided into three stages: (1) The *Alarm Reaction* shows some degree of shock, lowered temp., rise and fall of the blood sugar, depression of the nervous system, and overwork of the adrenalin and pituitary glands. Next comes No. 2: A resistance reaction, in which there is a tendency to reversal of the harmful changes, and a resistance to the insulting agent. There may be a lowered resistance to other kinds of stress. Finally, No. 3. A *State of Exhaustion* may fol-

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low if the stress is too prolonged. The body resistance collapses and the alarm reaction may return. . . . If stress does not cease, the body may develop a *Disease of Adaptation*. The adrenals may be damaged, and arterial, G.I., joint, or other lesions may develop. . . . Selye emphasizes that the hypothalamus, hypophysis, and adrenals have a very important part in integrating the body defenses against stress.

—GUILLERMO OSLER, M.D., in *Arizona Med.*, July, 1954.

Dual Responsibility

INDUSTRY'S concept of adequate treatment is that treatment which will minimize the severity of the employee's injuries and help him return to productive work as soon as possible. In this phase of industrial medicine, the doctor has a tremendous dual responsibility. One is to diagnose and treat the injury and assist in the rehabilitation of the injured; the other, a more difficult task, is to define, without bias, whether the injury resulted from the employee's occupation and if so, to assist to define its source in order to control it and prevent recurrence. Let me give some examples. Dr. Edward E. Dart told me about this case and I think it illustrates well the point I want to make. Four employees came to the Medical Department and complained of pains in the hands and arms. After a thorough examination, no objective signs were to be found. The men persisted for a number of days that the pain continued and was

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noticeably worse about 3:00 to 4:00 A.M., with the condition improving during the working day. After thorough analysis of their complaints, malingering was eliminated as a possible cause; then, more thorough examination revealed alteration in vascular tone and the source of the injury was defined as from high speed vibration of the grinding work they were doing. Corrective measures were then taken to prevent similar injuries to these and other employees. Here is evidence as to how the physician can help the employer and the employee prevent the suffering and costs of industrial injuries. However, a much more difficult case for the doctor is this one. A man 58 years old worked all his life as a tractor operator, then retired and got a job in industry doing light labor work. One day, while picking up a small object, he said to his supervisor, "Oh, my back hurts!" He was sent to the doctor who treated him for a back strain, but to no avail. The man kept complaining and finally entered a suit against the company for a total permanent disability, claiming that he was no longer able to work. The question is this: Was his injury the result of his recent three months' employment, or a result of his arthritic back and the 32 years as a tractor operator? Two doctors testified for and two doctors testified against. A layman had to make the final decision. Another man went to his supervisor claiming that he hurt his back while trying to lift a heavy weight. To make a long story short, this man, his father, and two of his brothers, were all living together and three of the four were receiving compensation while the fourth was entering a suit for a total permanent industrial disability. These are the problems that face the industrial physician in making a decision on doubtful or borderline cases. Yes, we know doctors are not prophets. However, the problem still remains. More thorough examination and diagnosis of this type of case would be helpful to employer and employee.

—From "The Doctor and Industrial Relations," by H. K. LAMBIE, in *GP*, August, 1954.

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AMERICAN FRACTURE ASSOCIATION will hold its Fifteenth Annual Convention at the Shamrock Hotel in Houston, Texas, October 11-14, 1954. Information regarding the scientific program and the attendant features—tours, dinners, etc.—may be secured from H. W. WELLMERLING, M.D., Secretary-General of the Association, Bloomington, Illinois.

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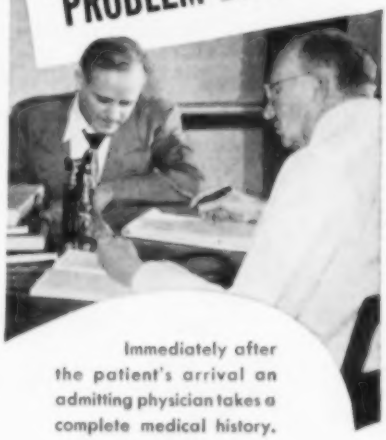

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1. Silbert, N.E.: Ann. Allergy *10*:328 (May-June) 1952
2. Peshkin, M.M., and others: Ann. Allergy *9*:727 (Nov.-Dec.) 1951

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Hardy, H.A., et al.: Calcium Ethylenediamine-tetraacetate in Treating Heavy Metal Poisoning, A.M.A. Arch. Indust. Hyg. 7:137 (1953).

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*Choy, D. S. J.: Clinical trials of a new plastic dressing for burns and surgical wounds. A.M.A. Arch. Surg. 68:33-43 (Jan.) 1954

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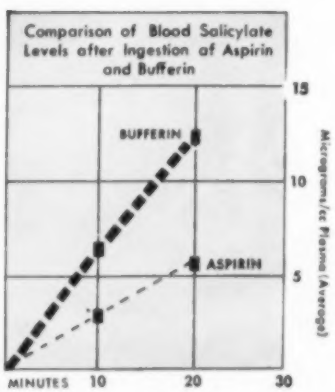

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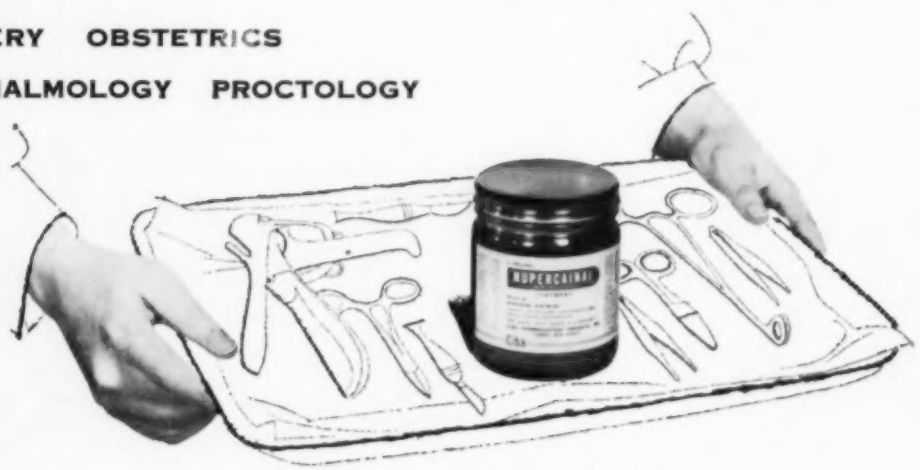

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